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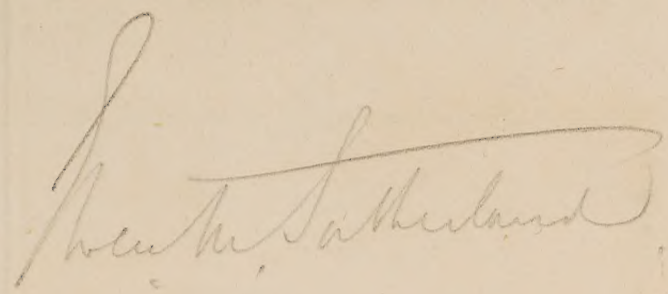

Map of the Soil of SUTHERLAND, on a Scale of Four Miles to an inch.

References.

- Shews the Marle loam, Sandy Haughs, or arable Land, Meadow or green pasture either Sand, or black earth mixed with Sand.
- Shews the Clay soil with a green or arable Surface.
- The greater part of the County is either Mountain, Moor or Peat moss, covered with Heather &c.

5° 30' 4°

58

CAPE WRATH · FAROUT HEAD · THE WHITEN HEAD · STRATHY HEAD

Hand I. · Stack · Edderachylis · L. Meddie · L. Craiggie · Tongue · Farr K. · Strath Halladale · Water of Halladale · Kildonan · Loth · Golspie · Little Ferry · DORNOCH · DORNOCH FIRTH · FIRTH OF TAIN

LOCH ASSYNT · LOCH INCHARD · LOCH LAXFORD · LOCH SHIN · LOCH NAVER · LOCH BADENLOCH

FOREST OF REAY · FOREST OF BEN HOPE · FOREST OF BEN KLIBRIGG · FOREST OF BEN GRIMMINGE

RUGGED MOUNTAINS OF ASSYNT · RUGGED MOUNTAINS OF BEN KLIBRIGG

Part of Ross Shire

Sutherland Sculpt Strand.

GENERAL VIEW

OF THE

AGRICULTURE

OF THE

COUNTY OF SUTHERLAND;

WITH

OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

DRAWN UP FOR THE CONSIDERATION OF

THE BOARD OF AGRICULTURE

AND INTERNAL IMPROVEMENT.

TO WHICH IS ANNEXED,

A PARTICULAR ACCOUNT

OF THE

MORE RECENT IMPROVEMENTS IN THAT COUNTY.

BY

CAPT. JOHN HENDERSON.

LONDON:

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THE desire that has been generally expressed, to have the AGRICULTURAL SURVEYS of the KINGDOM reprinted, with the additional Communications which have been received since the ORIGINAL REPORTS were circulated, has induced the BOARD OF AGRICULTURE, to come to a resolution, to reprint such as appear on the whole fit for publication.

It is proper at the same time to add, that the Board does not consider itself responsible for every statement contained in the Reports thus reprinted, and that it will thankfully acknowledge any additional information which may still be communicated.

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AGRICULTURAL SURVEY

OF THE

COUNTY OF SUTHERLAND.

CHAP. I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

SECT. I.—SITUATION AND EXTENT.

SUTHERLAND is situated between 57° 53″ and 58° 33″ northern latitude, and between 3° 40″ and 5° 13″ west longitude from London. By the south-east coast, from the Ord of Caithness to the Point of Dornoch, bounded by the Murray Frith, to the Ferry of Tain, or Meikle Ferry, at south-west, is thirty-two miles and a half. From the Ferry Point of Dornoch, along the Kyle and river Oickel, which divide it from Ross on the south, across the mountains from Kenloch-ailsh by Auldna-kealgath to Loch-kerkag, on the West Sea, is fifty-two miles and a half. From Lock-kerkag to Cape Wrath, in the north-west, in a direct line along the Atlantic, is forty-two miles and a half. From Cape Wrath along the North Sea to the Myre of Holastin (the boundary with Caithness on the east), it measures fifty miles; and from the sea shore where the Myre of Ho-

lastin joins the North Sea, to the Ord of Caithness, on a south-east direction, it is thirty-seven miles and a half. The number of square miles is 2925; the square acres are 1,872,000, English measure, or 1,497,600 Scots acres. Of this measurement the salt-water Lochs of Caile Scow, Laxford, Inchard, Durness-bay, Eribole, and Tongue, form forty-nine square miles, or 31,360 acres; and the measure of the fresh-water Lochs is nearly as follows: viz. Loch-shin sixteen, Naver four, Lyal three, Hope five, Loch-more four, and other small lakes; in all forty-seven square miles, or 30,080 square acres. The county of Sutherland contains about 18,000 acres of arable land, about 35,000 acres of green pasture, and the remainder consists of mountains, moors, or rivulets, which may be thus stated, as the result of the most accurate information that could be obtained by the Author.

	English Acres.	Scotch Acres.
1. Arable land of various soils,	18,125	14,500
2. Meadow and green pasture with some shrubbery,	43,750	35,000
3. Plantations for fir, &c. about	1170	936
4. Mountains or moors, covered with heather, rocks, rivers, burns,	1,571,409	1,257,127
5. Peat moss of sundry depths,	176,106	140,885
6. Salt water Lochs, 49 square miles, or	31,360	25,088
7. Fresh water Lochs, 47 ditto, or	30,080	24,064
Total,	1,872,000	1,497,600

This in the proportion of four Scotch to five English acres.

SECT. II.—DIVISIONS.

Political.—THE county of Sutherland is one sheriffdom; the county town is Dornoch, where the sheriff-depute,

depute, or one of his substitutes, hold their court of justice: there is another sheriff-substitute for the Strathnaver district, and he holds his court at Tongue four times in the year. The district of Assynt bring their complaints before the sheriff-court at Dornoch, in such cases as are not decided by the justices of the peace through the county.

The county of Sutherland was long a part of the sheriffdom of Caithness, until within these few years, when it was separated from Caithness, and a distinct sheriff-depute was appointed.

Ecclesiastical.—Sutherland, comprehending Assynt and Strathnaver, forms a part of the Synod of Sutherland and Caithness, and is divided into thirteen parishes, as follows: viz.

Parishes.	Patron.	Presbytery.
Assynt	Marquis of Stafford	Dornoch
Clyne	Ditto	Ditto
Criech	Ditto	Ditto
Durness	Crown	Tongue
Dornoch	Marquis of Stafford	Dornoch
Edderachylis	Crown	Tongue
Farr	Marquis of Stafford	Ditto
Golspie	Ditto	Dornoch
Kildona	Ditto	Ditto
Lairg	Ditto	Ditto
Loth	Ditto	Ditto
Rogart	Ditto	Ditto
Tongue	Crown	Tongue

SECT. III.—CLIMATE.

THOUGH the east coast of Sutherland is three degrees farther north than East Lothian, there is much less diffe-

rence between the two in regard to climate, than could well be imagined. The spring may be two weeks later, and the winter may commence two weeks earlier; but the summers are equally warm, if not warmer, and the winters not colder.

The south-east coast of Sutherland, from the Ord of Caithness to the Dornoch Ferry, and even up the country along the Ferry of Oickel, is well sheltered from the north and westerly storms, by a succession of mountains from three hundred to eight hundred feet above the level of the sea. The interior of the country, and the western and northern coasts, are exposed to frequent rains, and stormy weather from the Northern and Atlantic Ocean, which of course render the climate very wet and cold.

Prevailing Winds.—The winds blow from the west and north-west a great part of the year upon the western and northern coast of Sutherland, which generally bring rain; but upon the south-east coast, as above, the same winds bring dry weather; when the wind blows from the south-east, off the Murray Frith, it generally brings rain to the inhabitants of the east coast.

Quantity of Rain that falls.—In the course of my tour I did not meet any where with calculations of the quantities of rain which fall annually in this county, nor with any account of the number of wet and dry days. It is well known, that the western coast of Britain, bordering on the Atlantic Ocean, is more subject to frequent and heavy rains than the east coast, owing to the Atlantic being more extensive than the German Ocean: this cause holds good in the county of Sutherland. In Assynt, Edderachylis, and Durness, whenever the wind shifts to the west or north-west, which is very frequent, heavy

heavy rains ensue; indeed, it is supposed that there is no part of Scotland more subject to rain than Assynt and Edderachylis. During my stay there in June, 1807, I experienced only one dry day. The shores bordering the Atlantic are bold, with lofty and formidable mountains, divided near the shore by deep vallies, ravines, or lakes.

The west and north-west sides of the county of Sutherland are damp and mountainous, and the interior of the country, (though in a less degree), is the same, in consequence of its high mountains, lakes, and swampy mosses; but on the south-east side, which is generally termed the coast side, they complain, that in the summer months in general, they experience too little rain. The soil, in that part of the county, is either sand or light black earth, with a loose gravel or pebbly bottom; so that in a dry warm summer, which generally causes an abundant crop in the western part of the county, and, indeed, in most of the north of Scotland, the crops of corn on the coast-side of Sutherland are so stunted in their growth, as to be too short for the sickle. Small enclosures, with trees and hedges, would there be of the greatest service for preserving moisture.

SECT. IV.—SOIL.

1. *Clay.*—As there is but little of what may be called low land, in the county under review, there is not much clay in it: in part of the vale of Loth, the soil is a deep blueish clay. Prior to the sixteenth century, the river of Loth, as it emerged from the mountains, turned due north, running parallel to the sea, at the distance of about a quarter of a mile from it, through what is now called the vale of

Loth, and there formed a swamp or marsh, divided from the sea by high sandy banks, until an enterprising Countess of Sutherland caused a course to be cut for the river to the sea, through a rocky eminence; by which means about 100 acres of fine carse land have been recovered; it is tolerably drained by cross ditches, and yields good crops of corn and artificial grasses. There is some clay soil in the farm of Dunrobin; and in the vale from the village of Golspie towards the rock of Craigton; in many parts of Strath-fleet there is clay soil, covered with a foot deep of barren sand. At Morvich, two miles to the west of Craigton, there are about thirty acres of arable land, of a strong deep clay soil; along the north bank of the river Fleet, and contiguous to it on the same side of the river, there is a level haugh of peat-moss, where many roots and trunks of moss fir are dug up for fuel. The farm of Kinauld lies close to this moor, and has a similar soil with Morvich, but with a greater mixture of white sand in the soil, which makes it less tenacious. The tides flow into the river Fleet a quarter of a mile beyond Kinauld, to a place called Balintraid. The banks of the river are from six to twelve feet deep along Morvich and Kinauld. There is some clay soil at Pulrossie, below Skelbo, and between Ospidle and the Frith of Dornoch or Oickel, called Flod. In most places clay has been produced by the sediment of the finer particles of earth or mud, when the waters which had been almost stagnant, have deserted their original bed, or when the influx of the sea for a time deadens the current of rivers. This seems to be the immediate cause of all clay land near the level, and in the vicinity of the sea: at Loth, in the vale from the village of Golspie to Balintraid, and in Strath-fleet, which in many places is covered with a stratum of sand that has drifted after the water subsided, there are high sand banks on the sea shore. The

same

same applies to the low land on the north shore of the Kyle of Dornoch or Oickel, at Pulrossie and Flod, and at the end of Loch-laxford. Holm, or haugh, also, is undoubtedly a water-formed soil, and is uniformly found along the banks of rivers which have a smooth current; and in floods that overflow their boundaries at the influx of such rivers into other quiescent bodies of water, the fine haughs are generally formed; such as in the valley of Loth, the lower end of Strath-fleet, where the land evidently was covered by the sea, to the foot of the mountains from the burn of Golspie to Kinauld, a tract of 712 acres arable, 146 acres moor, planted with fir, and 1245 acres of barren sandy moor, which might be improved by planting it with fir, or covering it with clay, a stratum of shells, of a foot thick, found in the sands of the Little Ferry contiguous to it, and sea-weed, which is frequently driven in near that place.

2. *Loam.*—A constant course of tillage, and the application of fertilising manures, will convert any soil into loam, yet some think that loam is a primitive earth. Of this primitive earth there is little to be seen in the county under review, if we except the farms of Dunrobin, Skelbo, and Skibo: that species of soil is more frequent in a level country.

3. *Sand.*—With the exception of what has been already observed, the soil most generally found along the south-east coast, in the county of Sutherland, is sand with or without a mixture of pebbles, varying from the size of a pea to that of a turkey egg: that part of the soil is already arable, from the industry of man, by culture, and a mixture of sea-weed or ware, and peat earth, for manure; it has a dark hue, which may be termed a hazel loam, which in a moist season yields abundant crops of bear, or bigg, oats, or pease; and as that narrow coast-side is sheltered from

the northern blast by a ridge of mountains, as already stated, from the Ord of Caithness to the vicinity of the Little Ferry, or Strath-fleet, whose bold, heathy, and rocky front affords shelter, and reflects the rays of the meridian sun upon the cultivated ground between them and the Murray Frith. The average breadth of this coast-side is from a quarter to half a mile, but in some parts less, from the base of the heathy mountain, to the shore of the Murray Frith, except at Clyne and the lower end of Strath-fleet, where it is a mile broad. The climate here is more favourable than that of Morayshire, for bringing corn to maturity*; their bear and oats weigh two stone per boll more than similar grain raised in Caithness, to the north-east of it.

The interior of the county consists of the straths of the rivers of Helmsdale, Brora, Fleet, and Oickel, with their tributary streams issuing from the adjoining mountains; all these rivers bend their course toward the Murray Frith. The strath of Helmsdale, which is denominated the strath of Kildonan, until within two miles of the sea, is in general narrow; running from the north-west obliquely to the south-east, the river rather rapid, upon a pebbly bed, forming in its winding course alternate haughs on each side, partly arable and partly meadow or pasture; the mountains on each side rising at an angle of about forty-five degrees to the height of five, six, or seven hundred feet, all the way from Helmsdale to the town-land of Kildonan, where the valley widens, and where some haughs of good productive arable land are to be found, though twelve miles from the sea, and surrounded by moors and

* A Gentleman from Morayshire asserts, that the climate on the east coast of Sutherland, is warmer and drier, and the crops earlier, than in Moray.

mountains.

mountains. In general, the strath is from thirty to two hundred yards broad in the course of thirty miles from its various sources, from the Balloch, and Bein-griam mountains. The soil of the base of the mountains bounding the river contiguous to the haughs, is a mixture of argillaceous sandy gravel, with detached lumps of a granite rock or puddingstone, covered in many places with shrubbery of birch, willow, hazel, and even oak, and a barren sort of heather without ling, well adapted for planting oak and fir. The haughs most level, and of course the best soil, are occupied by a set of poor cottagers, who scourge it with repeated crops of oats and rye without manure, from an apprehension universally entertained, that the river, by its rapidity during a flood, would bear away the soil, if loosened by manure. Such banks as are cultivated above the haugh, consist of a reddish gritty sand, and peat earth. Ascending the stream beyond Kildonan, the haugh soil is pretty much the same, but the base of the hills abound more in till than any other soil.

The strath of Brora commences at the base of Benchlibrick, where it is very narrow, and the course of the river rather rapid, on a pebbly bed for fifteen miles down to Braegrudy. At Grudy the bed of the river is rocky until it passes Shiberscross, where the mountain ground on each side begins to show a bolder face, with rocks. The valley is here a quarter of a mile broad, and the face of the hill on the north, is green pasture for two hundred yards back from the haughs, where it again runs through a valley of sand and pebbly stones, after the junction of the Strath-beg river, for two miles to Grenan, where it forms a lake. From Grenan to Killend the strath is level, and the river forms three successive lakes; the largest about a mile long, and a quarter of a mile broad, with

with rich haugh ground at each end, and on the north side, at Gordon-bush, an isthmus.

From the junction of the Strath-beg with the strath of Brora to Killend, the latter is about three quarters of a mile broad, bounded by rocky heath-covered mountains, whose base rise suddenly from the water-formed haugh; and in some parts good loam, as at Aschoil-beg and Aschoil-more.

From Killend to the sea it is called Strath-steven, and the river meanders through a reddish gravelly soil, or rather a mixture of round stones and red sand, covered with a barren heath, except so far as it is improved by trenching, &c.

The Strath-beg, which is a branch of Strath-brora, commences its course at the south-east base of Bein-vadow and Bein-armin, and is narrow among the mountains until its junction with Strath-skinsdale; from thence it runs on a shelvy rocky bed to Strath-brora. Upon the west side of this river, which is called the Black Water, near Coles castle, there are about a hundred acres of green pasture in the face of the mountains, with some patches of arable rocky land, and remains of a shrubbery of birch, &c. Uniformly, where the soil near these rivers or burns is broken up by the plough or spade, for agricultural purposes, it seems to be a mixture of a granity sand and peat earth. And with the exception of the level ground between Grenan and Killend, the haugh ground is of the same texture, with a considerable proportion of rough pebbly stone; the burns and rivers being too rapid to admit of mud subsiding to form soil that could be called a rich haugh.

I have formerly remarked, that the soil in Strath-fleet, as far as Kinauld, and all the strath to the north-west from

Kinauld,

Kinauld, is the sources of the river Fleet in the mountains. At Ballinacher (or the town on the high land), the soil is very similar to what is described in Strath-brora: the river is rather rapid on a pebbly bed, forming small haughs on each side, which are overflowed with floods, but yield in many places good meadow grass. Immediately above Kinauld, the valley or strath widens to about half a mile broad, and two miles long by Aoden to Rogie; but the haugh ground is but a small proportion of it, the cultivated ground rising up the face of the rocky mountains at an angle of about 30°; the soil a granite sand and black earth, which may be called a hazel loam. Towards its source the strath narrows, and becomes more rocky and tilly.

At Balintraid the burn of Rogart joins the river Fleet from the north in a zig-zag course through rugged valleys among the heathy mountains, in many places covered with a shrubbery of birch, aller, hazel, and willow, and in some eminences, small patches of arable land, of the uniform kind of soil already stated.

The kirk and manse of Rogart are on an eminence to the north-east of the burn, in a pretty romantic place, and half a mile to the west is a level valley lined with shrubbery of birch and willow, through which the burn runs, surrounded by high rugged mountains covered with heather. About two miles to the north of Rogart, through deep peat moor, there is a town-land occupied by thirty families. Between Bein-horn on the east, and Knockardintinail on the west, this valley contains about one hundred acres of arable and pasture ground, of hazel light loam. Ascending the hill, on either side of a small lake in the centre, the soil is peat earth with rock or till below it. A small deep rapid burn runs from this lake to the water of Brora, lined with shrubbery of birch and

and aller. To the westward of this, the country is either a deep peat moss, or rugged mountains.

The next strath worthy of notice is the burn of Torboll, running from Loch-bowie through a deep glen to Loch-fleet. It has small haughs and patches of ground on eminences, similar to Strath-fleet. At Torboll the soil (a hazel loam) is very fertile, having the command of sea-weed for manure, and being well sheltered by the surrounding mountains.

The next place along Loch-fleet is Skelbo, a fine rich hazel loam soil, bounded on the west by Bein-larn, and on the east by the sandy hills of the Little Ferry, or *Ferry Unes*, and a moor between it and Embo. There are here about one hundred acres of excellent arable land; and, including that occupied by small tenants in Skelbo and Achavander, there may be in all about 284 Scotch acres of arable land, in the vicinity of the ruins of the ancient Castle of Skelbo. Embo is a sandy soil, with about one hundred acres of arable land, having the Murray Frith on the east, and a gravelly moor on the west; part of which was lately planted with larch and Scotch fir. The same soil continues almost to the town of Dornoch. Between Dornoch and the Mickle Ferry, or Portna-culter, is a mossy bog of 220 acres, bounded on the west by a high sandy bank, and similar banks between it and the sea, partly improved; of which more hereafter.

The sandy soil prevails to the rivulet of Evelicks, which has its source from Loch-laggie, and divides the Sutherland estate from Skibo, a beautiful place, the property of Mr. Soper Dempster, which borders on the north side of the Mickle Ferry, to the westward by Pulrossie and Flod, towards Spinningdale. The tide ebbs and flows in various creeks surrounded by sandy hills, either yielding fir, timber, or under culture. The

ground

ground rises gradually from the ferry to the top of Bein-vracht, about seven hundred feet above the level of the sea. Skibo is well cultivated, enclosed with hedge-rows of timber and clumps of hard wood; open to the meridian sun, and is a beautiful and romantic place. The estate extends to Portenlick, along the Mickle Ferry, or Frith of Dornoch, about fourteen miles, containing about 18,000 acres, principally moor, excepting about two hundred acres in the farm of Skibo, where the soil is a good strong loam. There are one hundred and twelve families on this estate: about twenty years ago there were only fifty families.

The next place, to the west of Skibo, is Hospidale, a well-wooded, sheltered place, having the same exposure with Skibo; the soil a sandy loam; about 150 acres, the property of Mr. Gilchrist. Between it and the Kyle, is Flod, a farm occupied by Mr. Davidson; the soil a sandy clay, with about twenty acres of fir planting to the west of it, along the Kyle or Frith.

I next proceeded to Spinningdale, over a steep moory bank along the Kyle, which is here three miles broad. There was a cotton manufactory erected at Spinningdale by a Glasgow company some years ago, which employed one hundred hands; had thirty-six jenneys, with one hundred and thirty-six spindles in each. There were twenty houses built by the manufacturers, and some ground improved on the neighbouring banks. In 1806 the building was accidentally destroyed by fire, and there seems no intention of renewing the undertaking.

From Spinningdale, along the steep banks of the Kyle, there is an oak wood about a mile long and a quarter of a mile broad, sixty acres of which was bought for 250*l.* for the sake of the bark. The wood was purchased by the country people, along the Kyle, towards Dornoch and Tain,

and

and the bark was sent to a tannery at Thurso: the soil here is a sandy gravel interspersed with rock. Two miles further up is Criech, a woody valley, paying 100*l.* per annum to Mr. Houston, the proprietor. Two miles farther, along a rugged heathy hill, intermixed with some patches of arable land and shrubbery, is the Bonar Ferry. The Kyle is here not above a hundred yards broad. Vessels of 30 ton burden come up here with the tide. From the Bonar to Portenlick is two miles. Here the hills on the north, or Sutherland side, are less bold and precipitous: on the banks of the river, which is deep, there are about one hundred acres of a red gritty sandy gravel, and peat earth, partly arable and partly pasture, covered with sorrel, which proves that the soil, naturally poor, is very ill managed. Near this place, through a barren gritty moor, is Portenlick, where droves pass to the Ross-shire side, on their way to Falkirk: it is deep, and about sixty yards broad. Here the roads from the west and east coast of Sutherland unite, and it is intended, it is said, to make an iron bridge, which would be a great accommodation to travellers.

A mile further is Invershin, where the river from Loch-shin discharges its current into the Kyle, or river Oickel: here the two rivers form a valley, containing about one hundred acres, partly arable and partly green pasture. To the foot of the receding mountains it is all of a red sandy soil with peat earth. The river Shin runs from Loch-shin seven miles through rough rugged heath-covered banks, interspersed with small patches of arable land and green pasture. Loch-shin is eighteen miles long, and from a mile to three quarters of a mile broad, lined with shrubby banks, heath-covered hills, with small patches of arable land and green pasture, particularly adapted for sheep-farms, to which it is now applied. Fifty families have been removed out of the parish of Lairg, from Achin-

dowich

dowich to Knock Shendan; but these people were, with very few exceptions, again accommodated on the Sutherland Estate.

From Invershin, along the north or Sutherland side of the river Oickel, is Inveran, Linside-beg, and Linside-more, the property of Mr. M'Leod of Cadboll, containing about seventy acres of arable land, the soil red sand and gravel, sloping in the face of the hill above the river. Along the river here, is some haugh ground, which it overflows occasionally with floods; about one hundred yards broad, swampy, with coarse grass, and interspersed with aller bushes and willow. Behind these, to the north, are steep hills covered with heath. These three places are occupied by twelve tenants, who pay the proprietor 166*l.* sterling, yearly rent. The river is one hundred and fifty yards broad here, and on the opposite bank, on the Rossshire side, is Sir H. Monro's property.

The next places on the Sutherland side are Atlas-beg, Atlas-more, Knockintaul, and Invernauld, the Rose-hall property, stretching along the face of the hills: the arable land of the same sandy gritty texture, with a swampy leen or haugh below, of about fifty acres, partly covered with aller bushes.

About half a mile to the west of Invernauld, is Rosehall, the romantic well-wooded summer residence of Lord Ashburton. Here the river Caslie discharges itself into the Oickel. Opposite the angle of these two rivers the hills form an amphitheatre of haugh and rising ground, well covered with fir, oak, and ash, with some natural wood on the banks of the rivers. The oak is all natural, except 10 or 12 trees at most. There are about 100 planted trees of ash. The natural woods here consist chiefly of oak and birch, and in a subordinate degree of mountain ash,

ash, alder, willow, aspin poplar, and hazel. The planted wood (excepting two hundred trees perhaps of miscellaneous hard-wood, near the house of Rose-hall) is entirely Scotch fir; the oldest being planted in 1749 or 1750. There is no natural Scotch fir upon this estate, excepting a great deal of young natural fir, which has begun to spring up in the vicinity of the planted firs since they became old enough to produce seed. When Lord Ashburton purchased this estate, there was no fir of any other description, nor larch, upon any part of it. His Lordship has planted some larches, and has every year sown a quantity of acorns upon the hills, for the purpose of raising oak woods, without a nursery or transplantation. It is supposed that in this there is an additional advantage besides the saving of expence, viz. that the long perpendicular, tap-root of the oak, from which it derives its chief nourishment, is by this means never broken. The ground where this has been done, is now (1811) very full of young oaklings, the future success of which, time alone can tell, but they seem very thriving at present. The largest dimensions of the old trees here, are an oak 5 feet 4 inches in circumference, an aspin poplar 5 feet 1 inch, a planted Scotch fir 4 feet 7 inches, a birch 4 feet 6 inches. The gale of wind on the 25th December 1806, blew down 1500 Scotch firs (some of them of a large size) upon the Rose-hall estate. The soil is here of the same gritty texture as before stated.

After crossing the river Caslie, the river Oickel is about twenty yards broad, and fordable in many places; there is a fine level strath by Tutemtarvach and Turnag, about three miles west to Arnit, where the river Enag from the Ross-shire side joins the Oickel. In this strath there is excellent summer pasture for cattle, but the river divides the principal part of it to the Ross side, the property

perty of Sir Charles Ross, Bart. Thence the Oickel decreases in size, and its banks in value, to its source at Kenloch-ailsh, near Bein-more Assynt.

After crossing Drumcroy and Glen-muich by Auld-nakealagach, the first place in Assynt that presents itself is Lead-more; to the south of which is Loch-borelan; and a rivulet from it to Loch-kerkag at the West Sea, divides Assynt from Coigach, in Ross-shire. Assynt is the most mountainous and rugged part of the county of Sutherland. At Lead-more and Lead-beg, Mr. M'Kenzie (Ardloch), and Mr. John Mackenzie, have twelve sub-tenants, on about thirty acres of land; and in the neighbouring hills, quarries of white and variegated marble are wrought by Mr. Jopling.

From this place I proceeded due north, through what is called the Valley or Glen of Assynt, by a road of twelve miles, made by Mr. Jopling to carry his marble to the sea port at Unabol. The first habitable place is Stroncroubie. Here Mr. M'Kenzie has eight sub-tenants on about forty acres of arable land; they have a corn mill, and pay 40*l.* rent. Thence the road passes by the west front of rock Croubie, a bold perpendicular precipice about three hundred feet high. The strata in its face, as far as I could discern, is first whin, then freestone, then a thick stratum of blue limestone, then whin, &c. About a hundred feet above the base of this rock three springs of excellent water issue.

It is thence one mile to the kirk, manse, and school-house, at the end of Loch Assynt, and at the foot of Glas-vein, a stupendous craggy mountain to the east. Beyond an isthmus in the lake, a little to the north of the kirk, is the ruins of M'Kenzie's castle: it appears to have been a handsome building, of modern architecture. A quarter of a mile from this are also the ruins of Castle

Ardvrack, built by Donald Mac Neal Vain M'Leod, in 1595. It was long the head quarters of the M'Leods of Assynt, until the Mackenzies obtained a letter of fire and sword, and took it by treachery, for payment of a portion promised by M'Leod with his daughter to M'Kenzie. These ruins are famous for being the place where the celebrated Marquis of Montrose was taken, by treachery, in violation of the laws of hospitality. This castle was four stories high, all vaulted, and was destroyed by a thunder storm, except the south gable, about 1795.

Clash-more, the residence of Kenneth Scobie, Esq. is on an eminence above the lake. To Mr. Scobie I feel much obliged for his useful information, as well as hospitality. A quarter of a mile to the east of Clash-more, at the foot of Glas-chean (a very high precipitous rocky mountain, at least 2000 feet above the level of the sea), there is a very strong spring, from which constantly rushes a current of four cubic feet of limpid pure water, and it never freezes. About that end of the lake there are about thirty-five acres of arable land. The rocks about the east end of the lake are all grey limestone, of triangular seams and excellent quality.

From Clash-more to Assynt-beg is six miles: this is a summer residence of Mr. M'Kenzie, of Lead-beg. Here the river issues from the lake, and discharges itself in Loch-inver, a salt-water lake of the Atlantic.

Mr. M'Donald, at Coulag, has a feu of two acres and a half, where he has erected a store, and red-herring house, and employs fishermen along the coast by contract, on each side of Rou-stoir (the promontory of Assynt); from Loch-kerkag and Coulag he hires fifteen families and five boats; from Ach-melveet, twenty families; from Clash-toul, twenty-five families; from Store and Balchladich, twenty-four families; from Clash-more, twenty families; from Culkein, fifteen

fifteen families; from Achachairn, sixteen families; and from Clash-kenessie, twenty-four families. The arable land in all these places does not exceed an acre for each family.

The next is Mrs. M'Kay's, at Auldany, who has six families of fishers. Mr. Clark, at Culkein Drumpaig, has twenty acres: Drumpaig contributes fifteen families and four boats; Ned, fifteen families; Glenlerag, twenty-four families; at Ardvaar, Captain Scobie has six families, all fishermen, and about fifteen acres; Reantragaid, on the north Kyle's Cow border, five acres; Unabol thirty families, and about forty acres; rent 70*l.* Balnacaul and Glendow are at the head of Kyle's Cow, or the narrow Kyle. Upon the whole, there are in Assynt about three hundred families, and if I except forty families, the rest are fishermen on the coast of the Atlantic. They have not among them above three hundred acres of arable land, which is all laboured with the *cascrom*, of which more hereafter. The arable soil is the same with the land in Strath-fleet, viz. a mixture of granity sand and peat earth, except about twenty acres at Clash-more, which is a red clay, of an ochrey colour, and unproductive. In the bay of Kyle's Cow there are twenty-four small islands or holms of green pasture for sheep.

Edderachylis parish is on the north side of Kyle's Cow, bounded on the east by the *Diri Meanach*, or Mid Forest, as rugged and mountainous as Assynt; all its inhabitants reside in a small valley near the sea, and consist of 120 families.

The inhabitants of eleven places, amounting to fifty families, were removed, and their places occupied by sheep. The proportion of land to each family, with the exception of Scourie (which has 150 acres for twenty-six families), is from one to two acres each family; and

the arable soil is sand, and black earth, or light hazel loam.

Durness Parish.—The forest of the Parv, or Cape Wrath, along the west shore, now under sheep, consisting of the following places, was formerly inhabited, viz. Achamore, Auld Coirfrugal, Auldany, Grudy, Acharn, Kervag, Garaw, Sirsnel, Achnahovid, Keoldale, &c. in each of which places resided a few families of hardy Highlanders.

I come now to the water of Dinart, and Kyle of Durness, a sandy shore. Here the weary traveller is agreeably surprised to find a tract of fertile lawns covered with the finest verdure, land well cultivated, and abundance of excellent limestone.

At Balnakeil, once a highland residence of the Bishops of Caithness, there are sixty acres of fine land, sandy soil, with abundance of water from Loch-borvie. Between it and Keoldale, on the east shore of Durness-bay, is a deep lake, in which there are marl and limestone. At Keoldale there are about eighty acres of land either in corn, or artificial grass, or turnips: the soil in this promontory of Durness and Far-out-head is sandy, with limestone rock below of excellent quality, and the quantity inexhaustible. Mr. Dunlop has the farm of Balnakeil, and an immense tract of the *Diri More*, or the Great Forest, south from it, along the water of Dinart; and Mr. Clarke's farm of Keoldale, under sheep, with the Parv Forest, lies on the west of the bay. The pasture in both moor and dale, is the very best in the county of Sutherland.

After partaking of Mr. Clarke of Keoldale's hospitality and information, of both of which he was liberal, I proceeded

ceeded towards Rispond. At Sandgoe, about a mile from the manse of Durness, is the famous cavern called the *Smow*; of which more in another section. There is a moor of about forty acres near Sandgoe, subdivided into twenty lots, by order of Lord Reay, to be given to colonists who are willing to improve.

Within the last two years six persons in its vicinity have improved fourteen acres of peat moss, upon which they have a good crop of bear or bigg, and a luxuriant appearance of potatoes; and if they were to avail themselves of the limestone which is in their neighbourhood, it would much increase the fertility of their new improvements.

The next place is Rispond, a well-sheltered creek on the west side of the head of Loch-eribole, where Mr. Anderson, the tacksman, has built a good dwelling house, a salmon boiling-house, a shed for casks, &c., and made a pier to accommodate two or three vessels of sixty or seventy tons burden, on the site of rocks which he has blown up. Round him he has placed fourteen families of fishermen, who have cultivated with the *cascrom* all the hollows between the rugged rocks in their vicinity, to the quantity of about six acres, which yield good crops. The soil is small fragments of the granite rock and peat earth, which they manure with sea-weed. The country bounding the shore consists of bold, rugged mountains, covered with a little stunted heath; Loch-eribole is three miles across from Rispond to the east coast, called the *Moin*, with several islands or holms in the entrance to it. Opposite to Eribole is Island Chorie, a limestone rock surrounded by deep water, so that a vessel may lie alongside the rock. There is very little arable land on the east side of Loch-eribole, at Eribole, Hope, or Bragisgree, and that little is sandy and peat earth.

After leaving the banks of Eribole, and Loch-hope, I

crossed a deep extensive peat-moss, seven miles to Melness. Here Captain Scobie's farm lies upon the declivity of the hill bordering the west bank of the Kyle of Tongue, a shallow sandy bay, from the Rabbit Island to the foot of Bein-hope, about seven miles long by one mile broad. At Melness there are about forty acres of arable land, of a similar soil to what has been already described; and the Rabbit Island, a rocky shore and sandy soil, abounding with rabbits.

I crossed the Kyle of Tongue to an isthmus where Lord Reay has erected a neat octagonal building; a quarter of a mile to the east of which, in a delightful well-wooded bank, bordering on the Kyle, is Lord Reay's castle, and gardens of Tongue, or in the Gaelic language, *Keantal Mhickoay* (Mackay's chief residence). Here are about forty acres of arable land and plantation, and a neat small garden, with a freestone pillar six feet high in the centre of it, upon which a great variety of sun-dials has been cut: it was made in Paris. Along the Kyle, and river of Kintail, is Kirkiboll, the manse and kirk of Tongue, and Ribbigill, Major Forbes's farm, where the soil is hazel loam, or mixture of sand and peat earth. Turning to the left from Tongue, along the bay, is Rian Tongue, Colbackie, Sean-lany, Strath-sheray, and Skerray, Captain Mackay's farm, which has about forty acres of arable land. The three first mentioned places contain about twelve families, fishers, having about twenty acres of arable land. The mountain to the east of the house of Tongue, called Bein-frecktan *(the look-out mountain)*, is very high. Behind it to the east is Strath-tongue, containing three families, who have about five acres of arable land, and sheep; and pay 14*l.* rent.

In the parish of Tongue there are about 714 acres arable,

arable, and the number of inhabitants being 1439, hence there is only about half an acre to each inhabitant; and in Durness and Edderachylis parishes the proportion is still less.

After passing four miles of moor, I came to Mr. John Mackay's, at Borgie, a farm on the west side of the river Toriesdale, containing about forty acres of arable land, partly haugh and partly upland. The haugh formed by a rapid rivulet of gravel and some sand, and the upland light black soil, granite sand, and black earth. Mr. Mackay has six sub-tenants, and possesses the strath of the river Toriesdale to near Loch-lyal, three miles long by one and a half broad, of moor, strath, and mountains; has two hundred sheep, and pays 90*l.* rent. The river Toriesdale divides Lord Reay's property from Strathnaver, the property of the Sutherland family.

After crossing the river I travelled through a sandy shore at the foot of craggy mountains for two miles, to Invernaver, where the river Naver discharges itself into the North Sea. Upon the east of the river along the sea shore is Beaty-hill, Clerk-hill, and Farr, Swordley, and Kertomy, containing forty-five families; their arable land eight-penny land, about forty-eight acres of old extent, and pay about 80*l.* rent. Captain Gordon, of Clerk-hill, took the land of the small tenants into his own hands, and removed ten of them to a shallow moor in the vicinity; rent free for seven years. Their seven years have expired, and they have improved near an acre and a half each, and now pay some personal services, but very little rent. The arable soil of Clerk-hill is sandy, as well as the other places mentioned above.

The strath of the river Naver, from Kertomy to Mowdale, above Loch-naver, contains on the east side of the river about two hundred and twelve families, who occupy

about one thousand acres of arable land; and upon its west banks there are about one hundred and twenty-eight families, having about six hundred and twenty acres of arable land. The soil of the upland is a dark hazel loam, as before described, and a good proportion of haugh land and meadow on the winding banks of the river Naver, which seldom overflows. Of the above population, about seventy-seven families were removed from the upper part of the strath in 1806 to form a sheep farm. Such of these people as would accept of a portion of the land occupied by their more lowland neighbours, on parts of the strath nearer the ocean, were provided with a temporary residence, but many of them emigrated to America; and, melancholy to relate, the ship and passengers, about one hundred and forty, were all lost on the coast of Newfoundland, in a dreadful storm. This strath being the most populous of any in the county of Sutherland, I shall state the names of places, and the quantity of arable land in each place.

East side of the River Naver.	*Number of Families.*	*Number of Arable Acres.*	*East Side continued.*	*Number of Families.*	*Number of Arable Acres.*
Mowdale - -	10	48	Brought forward	106	494
Auldintarve -	2	12	Rhephail - -	5	30
Baghardy - -	2	8	Garvie - -	1	5
Chlitrick - -	12	50	Ravegil - -	11	44
Blairdow, or Salach -	2	8	Dunvedan -	7	40
Rhehalavag - -	10	36	Achabouy - -	1	4
Nibad - -	2	7	Skelpich - -	9	60
Rhecopag - -	1	4	Dulnadroit -	2	7
Achacoul - -	3	30	Rhenuey - -	3	30
Acheness - -	11	80	Achkenlochy -	9	40
Auldanleghert -	2	8	Achhilnaborgy -	8	36
Auldanaba -	1	3	Achanie - -	7	16
Badindilled -	1	4	Dalcharn -	4	14
Corihuran - -	4	20	Beaty-hill - -	2	14
Trudornag - -	18	54	New Lands of Farr	10	30
Dalharral - -	4	20	Achimore -	2	16
Rose-hall - -	13	50	Farr - -	10	36
Achness - -	2	13	Kertomy -	9	30
Rheloisg - -	4	30	Swordley - -	5	16
Ishlampy - -	2	9	Clerk-hill -	1	30
Carry forward	106	494	East side total -	212	992

The first ten places are under sheep.

West Side.

Jubeg Moudale -	4	30	Brought forward	75	340
Knockdow - -	1	7	Achnaclach - -	2	16
Grubmore - -	14	50	Polruskerny -	1	7
Denachcory -	3	16	Skail - -	5	50
Grub-beg - -	7	30	Wood of Skail -	2	8
Kencail - -	5	16	Carnuchy - -	12	66
Kittary - -	2	8	Dalhorikill - -	5	16
Rhicork - -	1	3	Acharagary -	4	16
Syre - -	14	65	Dallinigarsh -	3	15
Langdale - -	18	70	Apogill - -	1	16
Achatraltyr -	1	7	Lechoairn -	6	24
Laidstinachcory -	1	8	Invernaver - -	10	40
Letter-beg - -	4	30			
Carry forward -	75	340	Total -	126	614

I have thus given the names of all the town lands in Strath-naver, containing about 338 families, which, at six

to

to a family, is equal to 2028 souls, occupying about 1600 acres of arable land from Newdale, at the head of the strath, to Kertomy along the North Sea coast. There is much meadow ground on the strath along the windings of the river, which is broad and deep, and seldom overflows its banks.

The land is ploughed for oats with a Highland plough and four poneys a-breast, and they lay down their bear with manure, in general in lazy beds, from which they have ten or twelve returns. They sow near a boll of bear in about a Scotch acre. Their potatoes are planted in lazy beds. Some of their land is delved with the spade, called *cas ghirach*, or straight shaft, to distinguish it from the *cascrom*. From the best information I could obtain, it appears at an average each family have about twelve head of cattle, six small horses, fifteen to twenty sheep, and a few goats; say cattle in the whole 4080; horses 2040; and sheep 5000; the goats are kept only in the Highland part of the strath. The black cattle may be valued at 3*l.* 10*s.* at an average; the horses at 4*l.* each; and the sheep at 10*s.*

Armadale.—The farm of Armadale, the property of Lord Armadale of Strathy, commences at the burn of Kertomy.

Mr. Reid, the present tacksman of Armadale, has much merit as a sheep farmer, as he has not diminished the number of inhabitants, but rather increased them, and encouraged them to improve, and be industrious seamen. He has about twenty acres of arable in his own hands, near a neat farm-house, and no less than fourteen tenants who have a little old land, and are improving new. The farm extends from the burn of Kertomy on the west to the water of Strathy on the east, a distance of six miles

along

along the sea-shore, and four miles up the mountain. The arable, and other land in the vicinity of the farm, is a sandy soil, but more of a sea-sand than granite, and a mixture of black earth and a hazel loam. There are about fifty acres of green pasture and arable.

The farm of Armadale was taken in 1794 by a company of sheep-farmers in the south of Scotland (of whom Mr. Reid's father was one), as an experiment, to try if the Cheviot breed of sheep would thrive in so cold and northern a climate: a flock of the Cheviot was sent there under the care of Mr. Ker, a superintendant appointed by them. The flock did very well, and afterwards Mr. Reid, junior, purchased the whole, resides there, and it pays him well for his attention.

Strathy.—Upon the east side of the river of Strathy, is the old mansion-house, and offices, in a ruinous state. The mains contain about thirty-five acres; and various small patches of land along the river for five miles up, among the moory hills, are occupied by ten small tenants: the soil sandy for about two miles from the sea-shore, which is bold and rocky on each side the bay, and indeed all along the coast, with the exception of Naver-bay and Armadale. There are no fishermen at Strathy, or Ballgill; a place occupied by five tenants, a mile east of Strathy: they have about six acres of arable, gritty moorish ground.

Strath-Halladale.—Three miles from Strathy, through a barren moor, is Melvich, a public-house, which is the westernmost part of Strath-halladale, the property of Mrs. M'Kay, of Bighouse. But I should first observe Portskerra, which is a fishing creek a mile along the shore, north-west from Melvich; it contains twenty-nine families,

lies, and about twenty-three acres of arable land, of a dark sandy soil, all laboured with the spade. There are also eleven families of new settlers on the moor, to the east of the old colony, who are improving the peat moss, and raising bear and potatoes. They have five boats for the cod and haddock fishing, and all make salt. This is the eastern boundary of the Strathy estate.

The following is the number of families resident upon both sides of the river of Halladale:

West Side.	*Families.*
Melvich,	22
Kirk-town,	4
Evag Chruai,	2
Cowl,	4
Bighouse,	8
Auldinhulin,	2
Caar,	2
Trantel-more,	8
	52

East Side.	*Families.*
Trantel-beg,	4
Croik,	2
Dalhalvag,	6
Craigton,	4
Auld Smigile,	2
Achamore,	3
Korgary-beg,	1
Caomgill,	4
Evag-more,	3
Corkhull,	5
Golvall,	6
	40
	52
Total,	92

The Tor of Bighouse is the family residence.

From the highland part of the Strath, there were eighteen families removed to make a sheep farm: they paid 185*l.* sterling yearly rent, and the sheep farmer now pays 400*l.* sterling per annum for the same ground.

The arable soil at Tor and Melvich, near the bay of Bighouse, is sandy; beyond that upon the strath there is some haugh ground, which of course is gravel and sand; and the land beyond the overflowing of the river is a light hazel soil, the same with the other soil in general through the

the county. The extent of arable land on this strath is about 300 acres, and although it is a part of the county of Sutherland, in the ecclesiastical division, it is a part of the parish of Reay, in the county of Caithness.

I have been thus diffuse in describing the sandy soil or light hazel loams, being the predominant soil in the county.

Chalk.—There is no soil of that description in the county under review.

Peat.—The proportion of deep moss or peat soil in the county, may be about 580 square miles, or 371,200 acres of peat earth, from eighteen inches to ten feet deep. These are upon the levels and hollows of the mountains throughout the county, lie too high for any agricultural improvement, and are all covered with heath.

Wastes.—The mountains of this county may be considered as wastes. The tract of mountains bordering the south-east coast of Sutherland, from the Ord of Caithness to the vicinity of the Frith of Dornoch, on its southern boundary, and for ten miles into the interior, are covered with a stunted brown heath, with very little mixture of ling, or moss; indented with rocks, and the subsoil is till or schistus, and rock of the puddingstone kind, or a bastard kind of granite. The declivity of the mountains near the straths of the rivers, and in particular places along the coast, the subsoil is a sandy or a gravelly kind of clay, fit for planting. These mountains seem to be from 300 feet to 1400 feet above the level of the sea. The tracts of mountains and high hills that bound Strath Oickel, or the Frith of Dornoch, from the

the north of Skibo to Rose-hall, are of the same description with the above, for four miles into the interior of the country. The hill ground from Rose-hall to Loch kerkag, on the West Sea, with the exception of the upper part of the high mountains, has a considerable proportion of heath, ling, and moss among the heather, affording good pasture for cattle and sheep. The parish of Lairg, and all the interior of the county, come under the same description.

The Assynt mountains, viz. Bein-vôr Assynt, Glassbhein, Bein-canâp, Bein-chôinag, or the Sugar-loaf mountains, Bein-evie, Craig Rou, also the Bein-vôr, and Stack-vein of Edderachylis, are huge barren mountains of immense height, without a stalk of heath to be seen on their barren surface; even their bases, and the tract of country that borders the Atlantic, are so rugged and rocky, that no vegetation can be discovered, except some gloomy heath studded with piles of grey rocks; yet in the glens, ravines, and hollows, betwixt these mountains, the red deer, the goat, and even black cattle, formerly found good pasturage; now sheep occupy their place—the red deer have fled from the shepherd and his flock to the fastnesses of the mountains.

Lord Reay has allotted them a part of the *Diri More*, or Great Forest, to the east of Bein-vôr, Stack, and Archyle. The mountains of the Parv, or Cape Wrath Forest, are high, rugged, and gloomy, but less so than those of the Great Forest. The Durness mountains of Conval, Beinshanew, Craignascol, and Bein-bent, are high and gloomy in appearance; as well as Bein-hope, Craig Kynasoch, and Knock-frectan, in the parish of Tongue. Bein-âw, Beinchlibrick, Bein-vadow, Bein-armin, and Bein-griam-more and Bein-griam-beg, in the interior of the county, are also bold formidable mountains, covered with heath,

and

and studded with craggy rocks, bare near the summit. The great deer forest may be defined by a line from the end of Loch-eribole to Loch-medie, and from thence to the west end of Loch-shin. From that line to the West Sea, is a tract of about 300 square miles of high barren mountains, seemingly shattered by some great convulsion of nature, intersected by deep glens and ravines; with Loch-mercklan, Loch-more, Loch-stack, and Loch-garbadach, four fresh-water lakes, in an oblique direction through the centre of it, formerly the residence of the red deer, but now partly occupied by more useful animals, the black faced and Cheviot sheep. Each side of Loch-more is covered with birch wood, and other shrubbery, which is really a wood in a wilderness. All the other mountains of the county of Sutherland, though high and extensive, are less craggy, and more covered with heath.

From the most correct accounts that can be procured, the quantity of each kind of soil in the county, now in an arable state, may be calculated as follows:

	Acres Scotch.
1. Clay,	190
2. Sandy,	1120
3. Peat moss,	100
4. A mixture of sand, gravel, and black earth, which may be deemed a light hazel loam,	13,090
Total arable,	14,500

SECT. V.—MINERALS.

Coal.—At Brora and Strath-steven, a mile to the southward of the water of Brora, several coal pits have been made, and considerable quantities of coal found, which abounded so much with sulphur, that it could not be carried by sea, and it was dangerous to use it. A salt-work was erected at Brora, which was carried on at the same time, but discontinued as unprofitable. During easterly storms, some pieces of coal are driven in on the Brora shore.

In the printed edition, of Sir Robert Gordon's account of Sutherland, p. 6, he makes the following observations: "There is good sea-coal some half mile between the river of Brora, wherewith I have seen salt made, which served Sutherland and the adjacent provinces, and was also transported to England and other kingdoms, the year of God 1598. The coal-heugh was found beside Brora; and some salt-pans were erected a little be-west the entry of that river, by Jane Countess of Sutherland, unto whom her son, Earl John, had committed the government of his affairs during his absence in France. There was good salt made then at Brora, which served not only Sutherland and the neighbouring provinces, but also was transported into England and elsewhere. After some years interruption, that coal-heugh was again repaired, and set up by the said John Earl of Sutherland, and a greater number of pans erected there the year 1614. This coal-heugh was found by John (the fifth of that name) Earl of Sutherland; but he being taken away, and prevented by sudden death, had no leisure or time to enterprise that work."

I have not heard of any mines of copper, lead, tin, or iron,

iron, having been discovered in this county. There is a vein of manganese in a state of black oxide, at Rose-hall.

Marble.—At Lead-more and Lead-beg, in Assynt, the estate of Sutherland, Mr. Jopling, a gentleman from Newcastle, discovered, and continues to work quarries of excellent marble. One quarry of it is white, and pure as alabaster, and another of variegated colour, veined grey, blue, and red, which bears a very good polish. An account of it will be given in the Appendix, No. VI.

Some black marble with yellow veins, of good quality, has been discovered on Lord Reay's property, in Edderachylis, but owing to some misunderstanding as to terms, it has not been as yet wrought.

Limestone.—There is limestone at the shore of Helmsdale, at Dunrobin, at Kenloch-ailsh, and in the vale of Assynt, at the east end of the lake. The quality is good, and the quantity very great, but in such a district of country it cannot be turned to much account. At Durness there is great abundance of excellent light grey limestone; its veins or seams being triangular, it is easily wrought: the quality is good, and the quantity inexhaustible, and near water carriage. Limestone of the same quality is also found at Corie Island, opposite to Eribole: a vessel might lie in deep water close by the limestone rocks of the island, and either unload culm, or load limeshells, to be conveyed by sea to the harbours of Caithness, or the neighbouring counties, where it is much wanted for manure and building. If Lord Reay, or any person of capital, with his Lordship's approbation, established a couple of draw-kilns upon the island, a profitable lime trade might be carried on in that district, as one cargo

of culm from Sunderland would burn ten cargoes of slacked lime.

At Strath-steven, near Dunrobin, there is excellent white or light grey freestone.

SECT. VI.—WATER.

STREAMS and RIVERS.—The rivers and streams of the county of Sutherland, as may be supposed in so mountainous a country, are numerous. The most considerable of the rivers is the Oickel, or Frith of Dornoch, which is the southern boundary of the county from the Gizzing Briggs of the Murray Frith to Kenloch-ailsh, near Beinvôr Assynt: it is navigable for vessels of fifty tons to the Bonar, about twelve miles, and for boats to Rose-hall, eight miles further; above Rose-hall it divides into narrow and rapid branches.

The second river in importance is the water of Fleet, or Strath-fleet; as before noticed, the tide flows into it as far up as Balintraid; but it is only navigable for boats six miles, when it becomes narrow and rapid, dividing into several branches.

The third is the water of Brora, with its branches of Strath-beg, and Skinsdale, which spring from the south-east sides of Bein-chlibrick, Bein-vadon, and Bein-armin mountains, in the interior of the county, taking their course in a south-easterly oblique direction, until lost in the Murray Frith at Brora. The water of Brora and its branches are narrow and rapid, over either a pebbly or rocky bed, until it arrives at Grinan, a beautiful summer residence farmed by Mr. Ross, minister

minister of the parish of Clyne, and from thence by Gordon-bush to Killend, within three miles of the sea. The river runs through a level plain, and forms three lakes; the upper lake about a mile long and half a mile broad, the others of less extent; the water seems deep and black, from the dark shade reflected on it from the mountains, and rock of Carrol, a bold precipice upon the southern border of the lake, at least six hundred feet high. The scenery at Gordon-bush is very romantic and beautiful. From Killend the river runs rather rapid over a pebbly bed for three miles through Strath-steven to Brora, whence it is rocky to the sea. In this river the pearl muscle is found, and pearls collected.

The fourth river is the water of Helmsdale, the ancient name of which, even in the Roman maps, was *Ulie*, and hence the strath through which it passes, was called Strath-ulie. It takes its source from Loch-coyn, and several other lakes about the bases of Bein-griam-more and Bein-griam-beg, and from springs in Knockfin, bordering on Strath-halladale and Strath-donan, with its several tributary streams; until it passes the kirk of Kildonan, twelve miles from Helmsdale, and from thence it is called the water of Helmsdale until it runs into the Murray Frith at Helmsdale. The tide flows up half a mile, above which it is rather a rapid shallow river (except with floods), running in general over a pebbly or gravelly bed. All these, besides the water of Loth (a small rivulet stream), the burn of Golspie, and several minor streams, discharge themselves into the Murray Frith upon the south-east coast of Sutherland.

The rivers Oickel, Brora, Fleet, and Helmsdale, have good salmon fisheries.

Upon the northern and western coasts of the county there are,

1st, The water of Halladale, which takes its source from springs about the north base of the Bein-griam mountains, and runs a course of twenty miles due north, to Bighouse-bay, at the Tor of Bighouse. It is rather a rapid stream, receiving many tributary rivulets from the chasms of the mountains on each side to Golval, whence it flows through level ground to the sea. The tide flows about two miles up the river, but it is only navigable by boats.

2d, The water of Strathy, which runs almost parallel to Halladale, about four miles to the west of it. Its source is Loch-strathy, within four miles of the source of the Helmsdale water, and runs due north for fifteen miles, receiving some streams from the adjacent hills until it loses itself in the North Sea at Strathy, a sandy open bay, not fit for navigable vessels.

3d, Ten miles west from Strathy is the water of Naver, which takes its source from Loch-medie, in the centre of the county, and from thence runs due east, by Moudale to Loch-naver, and thence its course is nearly north zig-zag through the vale or strath of Naver, for twenty miles to the Northern Ocean, at Torsdale, which is a sandy shallow bay, open to the north. The tide flows for two miles up the river, which is only navigable for boats. Beyond this the river is rather rapid on a pebbly bed, receiving many tributary streams in its course from the mountains on each side from Loch-medie to the sea.

There is a good salmon fishing at the entrance of this river, and the inhabitants frequently find the pearl muscle in many parts of it, from which they collect pearls, which they dispose of from 1*s.* to 10*s.* 6*d.* each, according to their size and beauty.

If any person bathes in the water of Naver, he is afterwards considered as of the clan of Mackay.

4th, To the westward of Naver is the water of Kenloch,

loch, issuing from springs; it falls into Loch-lyal, and passing through it, enters Loch-craggie; from thence through a narrow vale, by Borgie, to Torsdale-bay, about a mile and a half to the west of the river Naver; the tides flow up about half a mile in this river, and it is the boundary, (as before observed), of Lord Reay's property to the east. There are fourteen feet water at spring tides in this river, near the sea.

Proceeding from Torsdale for six miles through heathy hills, you arrive at the Kyle of Tongue, into which the water of Kintail discharges itself, after a course of nine miles from springs in the vicinity of Loch-medie.

5th, The next, westward, is the river Hope, which has its source from Lochin Dâllag, at *Bealach na Mearlach* (the Thieves' Glen). It receives many tributary streams in its course for eleven miles to the south end of Loch-hope, and thence one mile to the sea on the east side of Loch-eribole. There is a good salmon fishing here.

The sixth and last river between Eribole and the west coast, beyond Cape Wrath, is the water of Dinart, which takes its origin from Loch-dowlas, a small lake in *Bealach na Fey* (the Deers' Glen) in the *Diri More*, or Great Forest, and after a northerly course of fifteen miles along the craggy and steep base of the Conval and Tonvarn mountains, over a rocky and pebbly bed, it falls into Durness-bay, between the Far-out-head and the Parv, or Cape Wrath mountains. There is also a salmon fishing in this river.

Lakes.—The principal lake in the county of Sutherland is Loch-shin. It stretches twenty miles from north-west to south-east, and is about one mile broad. From its situation between very high hills, its depth must be consi-

derable, but I could procure no account of its soundings. It abounds with salmon and trout.

The second is Loch-assynt, situated between the bases of the Glas-vein, Coinack, and Canasp, three very high and rugged mountains. Its depth must of course be very great, but there are no accounts of its having been sounded. Its length is six miles, and about a mile and a quarter broad.

The third is Loch-naver; the fourth Loch-hope; the fifth Loch-lyal; and the sixth Loch-more. These are the principal lakes in the county, as to extent of surface, and they all abound with trout. There are besides many small lakes, the most remarkable of which is Loch-monar, on the east side of the water of Naver, near Achfinlan. Tradition hands down to posterity an account of one of the clan of Mackay, who was possessed of some pieces of *stone*, or *nuts*, sanctified by some ancient saint, the virtues of which were so great, that the water in which they were immersed would cure all diseases. This man being much importuned to give these sanctified relicks to some of his clan, he fled with them to Loch-monar, where he deposited them; from that time the people of Sutherland, and many in Caithness, when conceiving themselves labouring under diseases, make a pilgrimage to Loch-monar, and by the dawn of day, on the first Monday of August, men and women promiscuously plunge three times into the waters of this sanctified lake; and after walking thrice round the lake, they return to their homes, as they imagine, perfectly restored.

There is another remarkable subterranean lake at Smow, a cave in a rock on the sea-shore to the east of Balnakeel of Durness. This cave is in a limestone rock, about thirty-two yards broad and twenty yards high at the entrance,

trance, and extends a considerable distance under ground. To the westward of its entrance is a small cavern, with an aperture about six feet diameter, and within is a pond or piece of water, which runs over a small fall at this entrance to the sea. This cavern is very dark, and tradition says, that the ghost of Donald du Mackay, of Strath-naver, is at times seen here; that he had attempted to explore this subterranean lake, in a boat, but that he never returned. So far tradition goes. About an hundred yards from the bank head, a small burn from the neighbouring mountains enters this lake through a gloomy crevice in the rock. Caverns of this kind are frequently seen in similar limestone rocks in Ireland.

Springs.—The most remarkable spring that I saw in the course of this survey is at Achamore, at the base of the south side of the mountain called Glas-vein, on the north side of Loch-assynt, but at least five hundred feet above the level of the lake. The current from it was rapid, three feet broad, and fifteen inches deep, in the month of June: it never freezes, and the quantity it discharges is nearly the same in summer and winter.

Throughout the whole of this rocky county there are a great variety of springs, all pure healthy limpid water. In Strath-naver they ascribe medical virtues to several of their springs; but I saw none of them that seemed much impregnated with any mineral quality.

CHAP. II.

STATE OF PROPERTY.

SECT. I.—ESTATES, AND THEIR MANAGEMENT.

THE following table of the valued rent of the estates in the county, will give an idea of the state of property, and of the scale of the landed proprietors in respect of fortune, viz.

	Scots Money.			
1. The estate or lordship of Sutherland,	£. 16,554	6	1	
2. Lord Reay's estate,	3647	13	4	entailed.
3. The estate of Skibo,	1974	11	6	ditto.
4. The estate of Bighouse,	900	0	0	
5. The estate of Strathy,	564	0	0	
6. Rose-hall,	400	0	0	ditto.
7. Part of the Pointzfield estate,	466	13	4	ditto.
8. Part of the Balnagown estate,	431	18	0	ditto.
9. Part of the estate of Cadboll,	354	0	0	ditto.
10. The estate of Embo,	346	0	8	ditto.
11. Ospidale and Ardeans,	253	6	8	
12. Criech,	200	0	0	
13. Achany,	100	0	0	
Total valuation in Scots money,	£. 26,193	9	7	

which in sterling money is 2182*l.* 15*s.* $9\frac{7}{12}$*d.*

From the above state of the valued rent of the several estates in the county of Sutherland, it will appear, that numbers 6, 7, 8, 9, and 10, are estates belonging to gentlemen who reside on their property in Ross-shire, &c.; and

and the only proprietors who constantly reside in the county, are those of numbers 11, 12, and 13.

The Marquis and Marchioness of Stafford, to whom the estate and lordship of Sutherland belong, and Lord Reay, occasionally reside in the summer season at Dunrobin castle, and at Tongue.

The estate of the ancient Earls of Sutherland, commonly called the lordship of Sutherland, is managed by a factor (land steward) appointed by the noble Proprietor, who not only collects the rents annually from the tenants, but, with the proprietor's consent, grants leases, and removes tenants; he holds Baron-Baillie Courts to settle petty disputes between the tenantry; acts as Vice-lieutenant of the county, and is a leading man at all county meetings.

There are several small wadsets upon this property: the holders of these farms advanced a certain sum of money to the proprietor, the interest of which, at five per cent., pays the stipulated rent for a certain number of years, say from one to two nineteens; and as the respective terms expire, the proprietor redeems the wadset by payment of the money, and they or their posterity become tenants on the estate.

At the commencement of the various wars in which Great Britain has been engaged from the year 1762 to the year 1802, the Earls of Sutherland raised a fencible corps in this county, consisting of one thousand rank and file; and such was the esteem and veneration of the people of Sutherland for their Chief, as well as loyalty to their King and country, that the Earl had only to call parochial meetings of the inhabitants, where all the males were formed in regular ranks, when the Chieftain, or some respectable individual acting for him, with a large snuff-box in his hand, and an attendant with a bottle

of

of whisky, went along the ranks; and to every young man whom he wished to enter the corps, he offered snuff: the signal was perfectly understood—the young man stept out, took his snuff and dram, and the clerk recorded his name and attestation. Thus, in the course of a few days, the Sutherland Fencibles were completed: they were then collected, and the King's bounty paid to them. Thus, in ancient days, the brave and hardy Highlanders of Sutherland would fly with alacrity to attend the call of their revered Chieftain, and their deeds were well known at the battle of Flouden, as well as many other more successful conflicts. But in modern times, to preserve the military spirit of the Highlanders, has become less an object of public or private attention.

Besides the factor, there are Baron-Baillies in the several districts or parishes, as well as ground-officers, to summon the people for payment of their rents, &c.

The estate of Skibo is principally managed by Mr. Soper Dempster, its present proprietor, aided by a factor; as are the properties of the landed gentlemen from Rossshire within the limits of this county.

Both the clergy and laity declined giving me an account of the present rent of the estates in this county, but it is supposed to be from 16,000*l.* to 17,000*l.* sterling.

The authority of the sheriff-depute and his substitute is often interposed in adjusting disputes, not only between the tenants, but also between the proprietors and them, where the subject becomes too intricate for the decision of a justice of peace or of the factor.

SECT. II.—TENURES.

THERE are three kinds of tenures within this county.

The lordship of Sutherland is held of the Crown, and acknowledges no other superior; so is Skibo, Embo, and Rose-hall.

The second is the baronial right, which the Earls of Sutherland held over lands of which they transferred the *uti possedetis* to another, and these are the Reay, the Bighouse, and the Strathy estates.

The third is wadsets, already mentioned. It is a political circumstance peculiar to the county of Sutherland, that 200*l.* of valued rent constitutes a vote for a Member of Parliament, whereas, in all the other counties of Scotland, no less a sum than 400*l.* entitles the proprietor to vote for, or be elected. This induces some of the proprietors to avail themselves of this privilege, by creating a number of voters over their properties*; and in this county those proprietors who hold their lands of the Earls of Sutherland, by a particular statute, have a right to vote for, or be elected Members of Parliament.

There are some croft lands contiguous to the town of Dornoch, which hold of the Crown, it being a royal burgh.

The Bishop lands of Sutherland were all alienated before the termination of episcopacy in Scotland.

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* The wadsetters on the Sutherland estate, who have advanced their money, and draw the real rent of their lands, enjoying the *dominum utile* of an extent equal to 200*l.* Scots of valued rent, cannot, with any degree of propriety, be called Fictitious Voters.

CHAP. III.

BUILDINGS.

SECT. I.—HOUSES OF PROPRIETORS.

THE first of these worthy of notice within this county, is Dunrobin castle, the ancient seat of the Earls of Sutherland, built upon an eminence near the sea shore, situated in the parish of Golspie, on the south-east coast of the county. It is a well constructed square building, having a small court in the centre; has good gardens; and is well wooded, on a southern exposure. A View of it is annexed.

The next is the house of Skibo; which has nothing in its structure to command attention: it is also situated on an eminence surrounded with wood; and has a view of the ferry or Frith of Dornoch, and a part of Ross-shire: the surrounding eminences covered with wood, and the valleys well cultivated; in short, it commands one of the most beautiful prospects in the north of Scotland.

There is a good modern house at Embo; also at Uppat, Clyne, Kentradwell, Cyder-hall, Crackan, and Gordonbush; and several of the wadsetters have good substantial houses, along the south-east coast of Sutherland. The house of Tongue, Lord Reay's residence, and the house of Bighouse, on the north coast of the county, are substantial and well-built houses. All these are slated with Easdale or grey slate.

There are ruins of castles at Skelbo, at Helmsdale, and

at

Neale sc. Strand.

DUNROBIN CASTLE.

at the east end of the Loch of Assynt. The most remarkable of these ruins is Macleod's castle of Ardvrack, already noticed. Mr. Macleod of Geanies is descended from this family; and some years ago, when he went to Assynt to recruit for his son, Major M'Leod, of the seventy-eighth, who was killed in Egypt, an old woman of the Clan saluted him on his arrival among them: he of course took her by the hand, and she instantly made a vow that she would never give that hand to another, after such respect being paid her by the descendant of her Chief.

The houses of the proprietors, wadsetters, and principal tenants, are well planned and commodious, for country gentlemen of moderate fortune.

SECT. II.—FARM-HOUSES AND OFFICES.

THE wealthy farmers and wadsetters have their offices proportionally commodious; but in general the houses of the smaller tenantry, which they and their cattle inhabit together, are very mean and wretched. The walls are of mud (provincially *feal*), and the roof made water-tight with divots, or thin sods, supported by couples and side timber of birch or fir, made in the form of a semicircle, having a few holes on the top of the roof to let out the smoke from a fire upon a hearth in the middle of the building, surrounded by the tenant, his wife, and children. As the smoke diffuses through the whole of the building, the cattle, who are tied by bindings made of birch wythes to stakes in the walls at one end of the house, reap the benefit of the warmth. In some cases the walls are built with a tier of stone betwixt each tier of feal, and in some the first three feet high of the walls and gables are built with stone, and the remainder with feal or sods.

In

In the Highland straths towards Assynt, they build their barns thus: the walls and gables are raised five to six feet high with stone without mortar, with some tiers of feal, and the gable tops are wattled in the form of basket-work, with the twigs of birch, willow, &c. so as to throw off the rain, and admit a thorough draught of wind. As soon as their small crop of corn is cut, it is put into the barn to preserve it. This class of the inhabitants, though the most numerous, are too poor to build better houses, and they seldom get any aid, beyond a few birch or fir sticks, to assist in forming the roof. When a tenant removes, the timber of the possession is valued; if the value is more than the price of the timber originally furnished by the laird, the incoming tenant pays the difference to the outgoing one; but if deteriorated, the outgoing tenant pays the difference to the proprietor. The walls and gables are never considered of any value in these cases; and the outgoing tenant has a right to carry off the doors, not being fixtures. The only windows in such houses are holes in the roof, near the top of the walls, to admit light with good weather, and when the wind blows on them they are shut with a bunch of straw or a sod.

There is too great a distinction between the higher and the lower order of tenantry in this county: the former are comfortable in all their accommodations; intelligent, polite in their manners, and hospitable in their houses: the latter are deprived of these comforts, but are naturally sagacious, and acute in their feelings, and have an understanding and intelligence beyond the same class of society in the southern parts of Scotland.

Repairs.—In some cases the farmer, on taking a lease, agrees to build, and improve his farm house, for a stipulated

sum

sum to be paid him at the end of his lease. In other cases he has an allowance out of the first rents, for buildings, or repairs, &c.; in the former case, should the tenant expend on buildings and improvements treble the allowed sums, he will only receive the sum stipulated, or the value of his meliorations, if less than that sum.

Price of Building Materials.—The mason work is done at from 36*s.* to 56*s.* per rood of thirty-six square yards, according to the height of the work, provided the materials are laid within three yards of the building. Quarrying the stone at from 15*s.* to 21*s.* per rood, and carriage in proportion to the distance, and other local circumstances; and in cases where the mason undertakes to furnish the materials, as well as build with stone and mortar, the charge is from four guineas to six guineas per rood linal measure. Freestone for doors and windows furnished at from 9*d.* to 1*s.* per square foot; lime imported from Sunderland at about 10*d.* per barrel of thirty-two gallons slacked. Fir timber, when imported coastways from the southern counties of Ross and Inverness, costs on the south-east coast of Sutherland about 1*s.* 4*d.* per solid foot, but if carried to the north coast of Sutherland by the Pentland Frith, from 1*s.* 8*d.* to 2*s.* per solid foot, and freight. Foreign fir at from 2*s.* 6*d.* to 3*s.* per solid foot. Iron costs now from 4*s.* to 5*s.* per stone, of 16 lb. avoirdupois, in the bar.

SECT. III.—VILLAGES AND COTTAGES.

Previous to mentioning these, it is proper to take notice of the royal burgh of Dornoch, the only town in the county, containing about five hundred inhabitants.

Here

Here are the ruins of the Bishop's palace and cathedral: a part of the latter is still entire, and is occupied as the parish church. An Engraving of it is annexed. This town has very little trade, or resources to recommend it to notice, though upon the shore of the Murray Frith. It has no harbour; and the sandy shore is quick and shallow.

The situation of Dornoch is thus celebrated by Sir Robert Gordon, anno 1630: "About the town along the sea-coast there are the fairest and largest links, or green fields, of any part of Scotland, fit for archery, golfing, and all other exercise. They do surpass the fields of Montrose or St. Andrews."

The only village in the county is that of Golspie, a fishing village near Dunrobin. It consists of only a few thatched huts, partly under ground, occupied by fishermen, with three slated houses inhabited by shopkeepers.

The cottages, or houses occupied by cottars or mechanics throughout this county, are, with the exception of those built at Spinningdale, very mean and dirty, being built and thatched with mud and sods, seldom water-tight, and always smoaky.

Bridges.—The bridge on the water of Brora, is the only one that formerly existed on the numerous rivers and burns within this county; but the great line of road from Rossshire through the east coast of Sutherland, has commenced, at the mutual expense of the public and the county, and bridges are now erecting on the rivers and burns in its line, to the Ord of Caithness; a measure very much wanted.

CHAP. IV.

MODE OF OCCUPATION.

SECT. I.—SIZE OF FARMS.

UPON the Sutherland estate on the south-east coast of the county, the wadsetters prevail; these took an extent of ground equal to 200*l.* Scots of valued rent, and generally occupied a part of it themselves, say from thirty to fifty acres, or bolls sowing, and the remainder was occupied by their sub-tenants, in farms of from 3*l.* to 5*l.* rent, besides services, in some cases unlimited. In all cases where the wadsets are redeemed by the proprietor, the farmer is continued in what he has in his own possession, and the proprietor settles with the small tenants, and makes them independent of the farmer.

The various estates in the county have not been measured, and of course the rule of letting land by the acre is not general: the only data by which the extent of the arable is known, is by the quantity of bear sown (a boll of bear generally sows about an acre); land therefore is let by the boll sowing, and the rent of pasture by the number of cattle it will maintain in the summer months. The arable land is reckoned in penny-land, farthing, and octos; the penny-land is generally allowed to contain eight acres; an octo, of course, is one acre, or a boll sowing; but this varies in proportion to the quality of the land: when of a superior quality, the quantity is less, and *vice versa*.

versa. The arable land on the various straths in the interior of the county, as well as the western and northern coasts, are occupied, generally, in small lots of from thirty to one acre. Every occupier has, in his district, a proportion of *in-town* pasture, and the mountains and moory hills are pastured in common by the cattle of the nearest tenants.

SECT. II.—FARMERS.

THE character of the farmers in the county of Sutherland is as diversified as the size of their farms; and much more so than in counties in the southern parts of Scotland. There are none of them bred in a regular manner from their youth to the business of husbandry.

The more opulent class are gentlemen who have been in the army, navy, or some respectable line abroad; of no landed property, who have wadsets, and who farm partly for pleasure and convenience, but derive their profit from what they subset to the lower class of cotters, or small tenants.

By far the most numerous class are those whose fathers and grandfathers for many generations followed the plough, or the black cattle, and goats, in the mountains; who never think of changing or improving their condition, and whose means and professional knowledge are too confined to admit of change or amendment: the nature of the soil, climate, and short leases from their landlords, or tacksmen, discourage them; and indeed, until the sheep-farming circumscribed the extent of their hill pasture, their chief dependence was upon the rearing of black cattle, by which they made a bare subsistence with little labour, in conformity to the customs and prejudices of their

their predecessors. This class are frugal and temperate in their habits: in spring and harvest they labour hard; and the summer and winter months are passed in ease, poverty, and contentment. This attachment to idleness, induces them to listen to the delusive tales of *crimps*, who go about the country, recruiting for families to embark for America; a land, by their tales, flowing with *milk* and *honey*. By these nefarious practices, many a deluded Highlander has been driven to slavery and misery in that remote country, where they have none to assist or protect them.

I must remark, to the credit of the inhabitants of the county of Sutherland, that none of the various sectaries of religious enthusiasm have been able to mislead them, or to gain any footing in their land*. They are all presbyterians, and devout in their attendance on divine service, and the other exercises of religion.

The crimes of rapine, murder, and plunder, not unusual in this county during the feuds and conflicts of the Clans, were put an end to about the year 1640. Domestic and social virtues are now cultivated, and revered by all ranks of people.

Big Sam, the Prince of Wales's late porter, was a native of Sutherland: he was above seven feet high, yet his father and mother were of the ordinary size. The inhabitants of this county are in general well limbed, from five feet three inches to five feet eight inches, a few from that to six feet, and very few above six feet high.

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* Now (anno 1811) some Sectaries have made proselytes in the parish of Assynt. This parish is very extensive, and the Minister of it being far advanced in years, an assistant is become absolutely necessary. Where schism prevails, there is commonly some deficiency in the duties of the Established Church.

SECT. III.—RENT.

In former times, when friendship and dependence subsisted betwixt the Chieftain and his Clan, a stranger seldom offered to take a farm from the Chief of any clan, well knowing that he would be held in disrepute for so doing; of course there were few leases of any duration, and but few removed from their possessions.

The rent of land has had a progressive rise over Sutherland, in proportion as the produce of the soil, either in corn or black cattle, increased in value, or rather as the value of money decreased, principally owing to the great quantity of paper money in circulation, from the variety of banking companies now established in Scotland.

Within these few years past, the rise of rent has been considerable, owing perhaps in some measure to the introduction of sheep-farming into the western and interior parts of the county, which of course increases the demand for farms, from the number removed to accommodate the sheep-farmer and his flock.

Along the south-east coast of the county the rent is paid partly in money and partly in *victual*, (oatmeal and bear), in equal proportions; besides which, the smaller tenants pay services, customs, and casualties to the tacksman or landlord. The rent of the arable land in this district is from 15*s.* to 21*s.* per boll sowing (or acre); the pasturage, taken as an appendage or accommodation along with the arable land, in some cases is charged at the rate of from 30*s.* to 35*s.* Upon the straths distant from the sea, and in the western and northern coasts, the rent of arable land cannot well be ascertained, because the tenants pay in proportion to the number of black cattle they can rear and maintain upon the farm;

farm; the arable land being but a very small proportion of it.

The entry to farms is at Whitsunday, and in general the first rent is payable at the first Martinmas after entry; commonly called a fore-hand rent, *i. e.* the money rent at Martinmas and the farm at the second Candlemas after entry. Where the farm is partly arable and part grass, this mode of payment is not inconvenient, because the benefit from the grass will enable the tenant to pay the first year's rent before he has raised a crop. On a farm entirely arable, the rent should not be payable until twelve months after entry*.

Grassums, (or fines, as they are sometimes called), were formerly taken by the proprietor, at the end of the lease of seven years, in place of a rise of rent. This custom was inimical to the improvement of the soil, although it might relieve the needy proprietor in the mean time: the tenant being compelled to part with a portion of his capital to pay the grassum, it crippled his exertions to carry on improvements; and the practice is now in general exploded.

SECTS. IV. AND V.—POOR-RATES AND TITHES.

THERE are no poor-rates or tithes paid in this part of the kingdom, and the funds for the maintenance of the poor, consists of the charitable collections of the parishioners every Sunday at church, some petty fines for breaches of

* Afore-hand rent enables the Proprietor to hypothecate the tenant's subjects for two rents, *i. e.* he can seize the crop for the rent payable the Martinmas of the preceding year, and his stocking for the rent payable the current Martinmas.

decorum, pious donations by benevolent persons, certain fees for the proclamation of banns, and the use of the mort-cloth *(pall)* at funerals. The fund is managed by the ministers and elders (church-wardens), under the controul of the heritors of the parish, who have access to examine the parochial accompts.

In addition to these provisions, the poor generally solicit charity through the several parishes; but among them are some, who, though reduced to want, have an honest pride which blushes at the idea of becoming a beggar; these often suffer the most excruciating misery, even to the verge of starvation, rather than go a-begging; and are often relieved by private donations from the humane and wealthy. There are no sturdy beggars or gypsies in this county.

SECT. VI.—LEASES.

WADSET leases in this county have been in some cases two nineteens, but as before stated, they are now but rare.

The leases between the proprietor and principal tacksmen are generally nineteen or twenty-one years; but the tacksman seldom gives a lease to his sub-tenants or cottars, and when he does, it is generally for three, five, or seven years. This is done with a view of making them more submissive in performing personal services, &c.

SECT. VII.—EXPENSE AND PROFIT.

THIS is a subject upon which I could obtain no particular information, as it immediately affected the individual interest;

interest; nor could I find a case where the farmers paid due attention to their expenses and profits. It is allowed, that on farms lately taken at rack rent, after paying the present high wages to servants, and the expense, and increased price of all implements used in husbandry, with the rent to the proprietor, the farmer has little left for his trouble. Upon grass farms the price of black cattle is so fluctuating, that in no two succeeding years can the value of the produce of the farm be expected the same; and the Sutherland grass farmers complain of the want of regular markets or trysts within the county, for the sale of their stock, at which drovers from the south of Scotland might, if established, attend*.

There is a sheep farm on the Balnagown estate in Sutherland, of 37,000 acres of mountains and valley or strath ground, stocked with black-faced sheep; and from the demand for similar ground for sheep-farming, it is presumed that the profit of sheep-farming is greater than that of any farmer either of arable or pasture land. From that, and several other smaller farms, the over-stock of wedders and draught ewes are annually driven to the south of Scotland, where they are sold at from 18*s.* to 30*s.* per head, and the wool is also shipped for the English markets, there being no woollen manufactory of any importance in the North.

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* Regarding the newly established fairs, see the Report of 1811.

CHAP. V.

IMPLEMENTS.

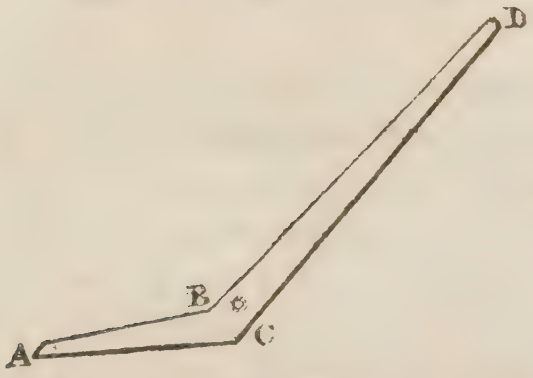
THE progress of civilization and agriculture go hand in hand in every country, and the progressive degree of improvement, is pretty well to be ascertained, by the kind of farming implements used in any district.

SECT. I.—THE PLOUGH.

THE more opulent farmers, as well as the proprietors, along the south-east coast, and some other parts of Sutherland, use the modern English and Scotch ploughs, with the metal breast or mould-board head, &c.: the price of such a plough is generally 3*l.* or guineas, or 4*l.* 10*s.* complete. The small tenants use the old Scotch plough, made of birch or aller, with the head and mould-board of the same materials, having a thin plate of hammered iron on the bottom, and the land side of the head. This plough, exclusive of the ploughshare and sock and plates, costs from 5*s.* to 15*s.* and is often made by the tenant who uses it. About 21*s.* will purchase the plough, amel, swingle trees, side ropes (of hair), &c. fit for work.

In the parishes of Assynt, Edderachylis, Durness, and Tongue, the *cascrôm* is in general use. This is a kind of spade, a figure of which is annexed. It forms an obtuse angle

angle from the angular point to the end where the iron embraces it;



From A to B the head, about two feet long; from B to D the Shaft, about five feet long from the angular point; C a piece of wood about eight inches long, projecting to the right side, which serves as a step for the right foot to push the instrument diagonally into the soil; the person holding the handle near the upper end, gives it a jerk on the angular point, which at the same time raises the lower part of it with the soil, and throws it to the right side. In this manner the labourer proceeds, and is enabled to turn up a considerable extent of soil in a day. The iron on the lower end is the shape of a narrow Irish spade, about five inches broad, having a socket which embraces the wooden handle, something like the sock of a small Scotch plough. With this instrument, the inhabitants of the above parishes work their scanty portions of arable land: and in Assynt in particular, there are not above six ploughs, or any other instrument for cultivating the soil, than the *cascrôm*. In the parish of Farr, or Strath-naver, much of their land is turned up with the spade with a straight handle (or *cas ghirach*), with which they make the land for bear into lazy beds, and plough the land for oats with the old fashioned plough used by their ancestors, as before described. No trenching, draining, or road ploughs, are used in this district.

SECT.

SECT. II.—HARROWS.

THOSE farmers who have the modern improved Scotch ploughs, use harrows with iron teeth, both the break and the common; but the common rank of tenantry use only harrows of their own construction, with wooden teeth, all made upon the construction of harrows with iron teeth, but with much less effect in reducing the soil; yet their land being, as before described, a friable black loam, these harrows answer the purpose, and in the district where the *cascrôm* is the plough, there is only one harrow used, which is dragged along by a man, instead of a horse or ox. This kind of harrow may be valued at 2*s.* the pair.

SECT. III.—ROLLERS.

AT Dunrobin, Skibo, and among some of the most opulent farmers, there are rollers of free-stone, five feet long, thirteen inches diameter, and some of wood fifteen inches diameter. There are none of any other kind, because a regular rotation of crops, or raising artificial grasses, is by no means general in this county*.

SECT. IV.—HORSE-HOES.

THE only horse-hoe in this county, is a small plough used for horse-hoeing turnips and potatoes, and sometimes even the common plough is used for that purpose.

* See additional Report of 1811.

SECT.

SECT. V.—HORSE-CARTS.

On the farms of the proprietors and principal farmers, there are good double horse carts, and carts for two oxen, which cost from 12*l.* to 16*l.* sterling. But among the smaller tenantry, there is a small kind of cart all made of wood, the wheels are made of ash plank, about two feet and a half diameter, and three inches thick; the axle and wheels move round together, and the traces are attached to the axle by a semicircle, or hoop of birch, which embraces the axle, and both ends of it fixed in the train on each side; and finally, betwixt the bars of the trams, a conical basket is set, which serves as a box to carry the load either of manure or fuel. A small poney is yoked to drag this load to the field, and the driver, to unload the car, overturns the basket, and then replaces it on the car: its contents may be half a cubic yard. This cart usually costs from 20*s.* to 25*s.*; but timber becoming scarce, its price is now advanced.

Another kind of baskets used by the smaller tenants in this county, for carrying manure, is made semicircular, of willow twigs; thus, the diameter or flat side is eighteen inches long, the depths of the basket is about sixteen inches; it is open at both ends; a flat semicircular piece of basket work is made to fit one of the ends; this piece as a bottom is attached to the edge of the flat side by two twigs of birch, as a pair of hinges, upon which this bottom moves either to shut or open the basket. A small stick of three-fourths of an inch diameter is fitted to the breadth of the basket, a few inches longer than its breadth; this stick is fixed to one of the semicircular sides of the basket with a hinge of birch twigs, and to the other side

side a hinge or noose is fixed to receive the other end of this stick under the bottom of the basket; and lastly, a short rope of the birch twigs or hair, is fixed in the flat side of the basket, as a *fettle*, to fix the basket in the clubbar on the horse's back; the horse being equipped with a fleat and clubbar on his back, the former a web made of straw, weaved with small ropes made of rushes, three feet by two feet and a half, and three quarters of an inch thick, and the latter made of crooked wood, like a saddle, to fit the horse's back above the straw mat, and secured by a rush or hair rope under the horse's belly. This clubbar or saddle has a deep notch in the top of it to receive the fettles or bands of two of the said baskets, one resting on each side of the horse; then the bottoms of the baskets are shut as above, and either men or women proceed to fill them with manure. Three or four horses thus loaded, being fixed by their halters or bridles to the tail of those in front, they are led to the field by one person, who leads the foremost horse, and the rest follow in files: on the field, the leader pulls the noose off the sticks, the bottoms of the baskets open, and down falls the manure. They then proceed back to the dunghill to reload.

This mode of carrying manure is very ancient, simple, and expeditious, in a district so rugged, that no wheel carriages can be used. Each basket holds about two cubic feet, *i. e.* four cubic feet in a horse, or rather small poney's load; six of them will of course carry twenty-four cubic feet, or even a cubic yard, or small cart-load. The manure, thus laid on the field is sooner and more equally spread than in cart-loads.

SECT. VI.—WINNOWING MACHINES.

THERE are a few fanners of the common construction among the principal farmers on the south-east coast of this county. In general, the women winnow or clean the corn with a sheep skin freed from the hair, and stretched on a hoop eighteen inches diameter, called *a weight**.

There is a small thrashing-mill worked with water, at Mid Garty, but it is not much used*.

There are no scarifiers, chaff-cutters, bruisers, waggons, tumbrils, borers, draining-tools, sowing troughs, or weighing machines, in this county*.

Those inhabiting the sea shore, have what they call a shore crook, for dragging together the driven ware, in order to carry it to the land for manure.

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* See additional Report of 1811.

CHAP. VI.

ENCLOSING.

THERE are no cases in which enclosures, in this county, have been done by act of parliament.

SECT. I.—FENCES.

OVER all the Highlands, as well as in this county, the practice of building what are called head-dykes, is of very remote antiquity, so much so, that there is no record to ascertain the era in which they were begun to be erected. These enclosures generally, exhibit evident marks of great antiquity. This head-dyke was drawn along the head of a farm or town-land, where nature had marked the boundary betwixt the green pasture and the more barren ground, totally or partially covered with heath. It is formed partly of sods and partly of round stones, where they abound. Within this fence the farmer had his arable, meadow, and pasture land, and beyond it the young cattle, horses, sheep, and goats, of the different tenants, fed in common. The milk cows are fed on the *in-town* pasture, until the farmer removes them, by the end of June, to distant shealings, or hill pasture, where they remain for two months. After the harvest is gathered in, both the in-town and the out-field become a common pasturage to the tenants of the town land, and even parish, until the end of March;

March ; after which each tenant preserves the grass of his own farm.

Upon the farm of Dunrobin, and several other parts of the county, the land is divided into regular fields of from ten to twenty acres, enclosed, and subdivided with walls built with stone without mortar or lime, about four feet and a half high. Such dykes are built at 4*d.* per running yard, and the price of the materials must depend upon the facility of quarrying, carriage, &c. in some cases, where the ground is wet, there are sunk fences, made with hedges of hawthorn ; the ditch is made at from 2*d.* to 3*d.* per cubic yard, and the stone facing raised at about 2*d.* per yard. In some instances, whins or furze is sown on the ditch, which in a few years make a good fence. The stone walls, when properly built, are the most durable ; they will last a century with little repair. Where the enclosures are made with proper modern fences, the gates are also substantially made with circular stone pillars, having four or five barred gates of fir to it ; but these are not common in the county.

CHAP. VII.

ARABLE LAND.

SECT. I.—TILLAGE.

FROM what has been already stated, the reader will easily infer, that the tillage in this county is much diversified. Wherever the surface is uneven, or so infested with rocks, or brush-wood, as hardly to admit the plough, and where the climate is so rainy and damp as to render the corn crops precarious; or where the farmer depends for his profit more upon cattle than upon arable land, it would be in vain to expect that agriculture should be carried on, as we meet with it in districts more favourable for the operations of the plough.

Along the coast-side of Sutherland, the more opulent farmers plough their land with a pair of horses, without a driver, and in some cases with four oxen a-breast, with a driver. The smaller tenants, both along the east coast and in the interior of the county, use four small *garrons* a-breast in their light plough, or perhaps two small poneys and two cows, all a-breast, with a driver; and in cases where their lots are small, two of them join and furnish two poneys each, and plough their land jointly, the one holding and the other driving the plough*. These people have their land all in crooked ridges, broad in the middle,

* In all these cases the animal pulls by the shoulder, by means of straw collars and hems, &c.

and

and narrow at each end, in the shape of an S, and a green bank, or cairn of stones, between every two or three ridges. The improvements carried on at Dunrobin Castle, the seat of the family of Sutherland, merit more particular attention; the following is the system adopted:—After the land is brought into good order by draining, all the wet ground, removing rocks, leveling &c. a crop of turnips is taken in drills four or five feet asunder, in order to clean the ground completely; bear or barley, with grass-seeds, is the next crop; the third hay, and the fourth pasture, continued for some years.

In the western district of Assynt, Edderachylis, &c. the land is turned over with the *cascrôm*. The gentlemen farmers have their land in straight ridges of about fifteen feet broad, and the depth of the furrows depends upon the depth of vegetative earth and quality of the subsoil. Along the south-east coast of Sutherland, as has been already observed, the subsoil is sand, or an open gravel.

SECT. II.—FALLOWING.

SUMMER fallowing is not practised in this county, the soil in general being a friable black mould with a proportion of sand; the only fallowing, therefore, is carried on by means of green crops of pease and potatoes; the turnip husbandry being limited to a very few farms.

SECT. III.—COURSE OF CROPS.

THE most general course of crops, in the south-east, or arable part of the county, is, 1st, pease, or potatoes; 2d, bear, or big, manured with ware, or sea-weed, or yard dung; 3d, oats, then pease, &c. again. In the in-

terior and western districts of the county, the general rotation is bear and oats alternately; and in some instances two crops of oats for one of bear or big. The bear is laid down in lazy-beds, with abundance of manure, and they have generally from ten to fourteen returns. Along with the second crop of oats, some sow rye, and they are reaped and manufactured together, into a kind of coarse meal: this is done upon land that is so scourged that they expect little return of oats.

Some of the arable land along the shore on the south-east coast, is almost covered with shore stones, from the size of a turkey egg to eight pounds weight. Several experiments have been made to collect these off the land, expecting a better crop, but in every case the land proved less productive by removing them, and on some small spots of land it was so evident, that they were spread on the land again, to insure their usual crop of bear, oats, or pease. It has been observed in some parts of England, when fields near the turnpike roads had been deprived of the stones, for making the road, that such fields were much less productive than formerly; and accurate experiments had been made to ascertain the fact. Should not this consideration prevent farmers from collecting much of the small stones off their land, when laid down with grass-seeds, as is now in general the case?

SECT. IV.—WHEAT.

VERY few experiments have been made to raise this grain. On the farm of Dunrobin, and at Skibo, the returns were said to be good, from eight to ten bolls per acre, from three firlots seed; but owing to distance from markets, variable climate, and want of manure, the culture

ture of it was given up; at the same time there is reason to believe, that with good management, it would thrive on the east coast of Sutherland, as well as in any part of Scotland.

SECT. V.—RYE.

VERY little of this grain is cultivated in Sutherland, except by the lower class of tenants, as already stated, as a mixture with grey oats on land so scourged, or naturally barren, that small returns, even of oats, are expected.

SECT. VI.—BARLEY, AND BEAR, OR BIG.

THIS is found the most profitable grain in this county, particularly the latter. They find that bear is an earlier and more productive grain than barley; it is therefore in more general cultivation.

Tillage.—The land for bear is generally ploughed in February or March, and as sea-weed can be had along the coast, it is spread on the soil, sometimes before the first ploughing, and sometimes afterwards. In the course of the month of May the land is harrowed, and ploughed a second time, when the seed is immediately sown (about one boll, or six Winchester bushels per acre), and well harrowed in. Where the land is not within the reach of sea-weed, the cattle dung, mixed with earth, by way of compost, is spread on it, previous to the second or seed ploughing; and frequently the bear-seed sowing is not over until the 22d of June; whilst the bear harvest,

in a warm season, commences the beginning of August, though in a cold season not till the end of September. The returns are from four to seven bolls per acre, according to the soil, and quantity of manure applied. It is all sown broad-cast, and only rolled when grass-seeds are sown with it, which is rarely done in this county. Bear weighs from sixteen to eighteen stones per boll, of about six Winchester bushels, and whatever portion the coast-side farmer has for sale of this grain, is purchased by the Highlanders from the interior of the county, of which they make whisky, or grind it into meal for food; the produce of their own small portions of land not being sufficient to maintain them above half the year.

The mode of making bear meal is, 1st, the bear is kiln-dried, then shelled and dressed at the mill, and afterwards ground into meal, which is baked into thin cakes called bear-bread, palatable, but not so nourishing as oat bread. The price of this grain varies from 16*s.* to 30*s.* per boll, according as the seasons are plentiful or scanty.

SECT. VII.—OATS.

ALONG the south-east coast of Sutherland, the kind of oats most generally sown, is the Blainsley white oat; and among the small tenants, a small grey or black oat. Both kinds are sown with one ploughing, broad-cast, at the rate of five firlots of the white oats, or two bolls of the black, per acre. The time of sowing is from the end of February to the end of April, as the season permits, and the ground is then harrowed. In the course of the summer, before the crop acquires its full length, farm-

farm-servants or day-labourers are employed to pull the weeds, such as thistle, mugwort, and dock; in doing which some of the corn is unavoidably trampled down and injured. The time of harvest is, from the beginning of September to the end of October, as the seasons are dry or rainy.

The produce, by the best information I could collect, is on an average about five bolls per acre. This corn is thrashed down through the winter, as the cattle require the straw; it is manufactured into oatmeal, and sold to the Highlanders in the interior of the county, at from 16*s.* to 30*s.* per boll of eight stone and a half Dutch, according to the demand. Of this oatmeal the natives make a hasty-pudding called pottage, on which they breakfast, with milk; they make oat-cakes of it for dinner, without any process of fermentation.

In the best season the produce of grain in this county does not subsist the inhabitants; of course some cargoes are imported to the south-east coast from the southern counties, and distributed among the Highlanders; and the county of Caithness serves the wants of the inhabitants of the northern and western coasts of this county.

The red oat has been tried in the sandy soil of the south-east coast of Sutherland, but discontinued, as the farmers considered it too early a grain for their warm soil. The returns of what had been tried proved scanty, both in corn and straw. This grain does better in a deep damp soil. Let the Sutherland farmer lay a good coat of clay on his light land, and it will yield red oats.

In the Strath-naver and the western districts, where the land is laboured with the *cascrôm*, it is very productive, owing to the great quantity of cattle-dung and sea-weed they have for manuring their small lots of arable land.

SECT. VIII.—PEASE.

THE most general kind of pease sown on the coast-side of Sutherland, is a small dwarfish grey pea, called the Sutherland pea, sown there for time immemorial; they ripen early, and yield good returns, five to six bolls per acre.

The land gets one ploughing about the beginning of April, and the pease are immediately sown broad-cast, and harrowed; this is all that is done to them until ready to be reaped, generally in September. In the parish of Loth, and at Dunrobin Castle, where the soil is of a clayey nature, beans are sown broad-cast with the pease; but the meal of the pease, without the beans, is sweeter, and better than with it, and since the potatoe crop is become general, beans are exploded.

The average return of pease from each boll sowing, or acre, is about five bolls. The pease crop is purchased from the coast-side farmers by the Highlanders, of which they make meal, and use it both in bread and puddings, with milk. The price generally the same as that of bear; the boll of pease is four Winchester bushels. The pease straw is given to their horses in spring. The pease stubble is ploughed soon after the crop is off, and prepared for bear the ensuing spring; pease stubble being the only winter ploughing practised in Sutherland. It is only along the sea-coast, or within three miles of it, on the south-east coast of Sutherland, that pease are raised as a crop, the climate in the other divisions of the county being too wet and late for that species of pulse.

SECT. IX.—BEANS.

BEANS are not now sown in this county, except, as already stated, with pease in clayey ground. Some time ago they were raised to great advantage, and the natives found them, ground into meal, a wholesome and substantial food. There was only one kind used here, of a small size. A mixture of bean and barley-meal used to be a favourite food in the southern part of Scotland.

SECT. X.—TARES.

NONE sown in this county, unless it be a few bushels on gentlemen's farms, as food for their horses in July.

SECT. XI.—TURNIPS.

THE turnip husbandry is in its infant state in this county: even the proprietors, or gentlemen farmers, raise very little of this valuable root. The little that is raised, is of the white and red-topt kind, but upon so small a scale, that little can be said of its effect; only that so far as experiments have been made, the crops appeared abundant. The soil, and even the damp climate of the interior straths in this county, would answer well for turnips, but their arable land being of small extent, and not enclosed, is a sufficient reason to prevent them from raising a root that might be the means of saving their cattle in a bad spring, by which they often lose a considerable number. In spring 1807, no less than 500

head of black cattle, and more than two hundred of their small horses, died from want, in the parish of Kildonan alone.

SECT. XII.—COLE, OR RAPE-SEED.

None sown in this county.

SECT. XIII.—CABBAGES.

There are none planted in the field. Some years ago the tenantry and cottagers usually had good cabbage-gardens, but the potatoe crop has superseded the use of cabbage in their gardens, with few exceptions. Along the coast-side they raise Dutch cabbage plants, which are sold to the Highlanders of the interior at from 1*d.* to 8*d.* per 100 plants. The nursery for this plant is generally a small spot of new ground, enclosed with a feal dyke, over which, after being trenched, they spread peat-ashes, and a little dung. They sow the cabbage seed about the end of July, and the plants are ready for the market about the end of March following.

Grub.—The country people generally plant their cabbage gardens early in April, and as the weather is generally cold during the month of May, the grub frequently cuts many of the plants about the roots, and of course the plant decays. To remedy this, the farmers frequently dip the roots of the plants in a thin pulp of lime, or soot and water, immediately before planting, which they find preserves the plants from the depredations of that insect.

There

There are no ruta baga or Swedes, turnip cabbages, or kohl rabi, sown in the fields in this county; nor are there parsnips or carrots, except what are sown in the kitchen-gardens.

SECT. XIV.—POTATOES.

This useful root is extensively cultivated, and the management in it well understood by all the inhabitants of this county; their soil is in general a light free mould; and when properly attended to in the weeding season, it is allowed to make the more ample return. Upon the coast-side of Sutherland, the mode of planting potatoes is with the plough, in land after a crop of oats: the land is twice ploughed, and the predominant weed, called quickens, or quick grass, is diligently gathered and burnt on the ground; then the potatoes are planted after the plough in drills, or every second furrow where it is intended to be hand-hoed only. The ground is not manured, because in every experiment that has been made, the potatoes, when the land is manured for this crop, are found to be watery and leprous, or full of small excretions.

In most cases, the land is manured and sown with bear after potatoes; but often sown with white oats, without manure, and it yields an abundant crop of good grain and strong stubble.

In the Highlands, and interior of the county, the potatoe is planted with the spade, in lazy-beds in new ground, or dibbled in stubble land; and in both cases well manured with cattle dung; and on the west coast of Assynt, &c. with ware or sea-weed.

The potatoes on the south-east coast of Sutherland are more farinaceous than in any other part of the county.

Every

Every householder, from the highest to the lowest, has potatoes for his family, and when they are taken out of the ground in October they are preserved in pits dug for that purpose, covered with divots (sods), and about eighteen inches of earth well packed above them, which preserves them in good condition for the spring, *i. e.* such as can be spared till that season.

The curl is a disease rarely known in this county among the potatoe crops.

There are various kinds of eating potatoes cultivated in this county, but the most prevalent is the kidney kind; also the round pink-eyed. But from want of attention the seed potatoe is much mixed with round red, pink-eyed, and kidney kinds, and all answer well. The kidney is esteemed more farinaceous than any other, except the early *round red.* The returns are not so abundant as in counties where the land is manured for that crop. The most authentic information I could obtain, stated the returns at from sixteen to twenty bolls from a boll planted. They find great benefit from change of seed from one district to another.

The early frosts in the Highland part of this county, frequently injure the potatoe crop, and even the corn crops in this high latitude and rainy climate, which are also liable to mildews. The night hoar frost, frequent in the month of August in the Highlands, affects the haulm of this plant, so that, as soon as the rays of the sun reflect upon them for a few hours on the succeeding morning, the haulm will have the appearance of being parboiled, and decay, which injures the roots, and no remedy has been discovered for this evil.

The inhabitants of this county, near the sea coast, where the potatoe crop is less liable to injury from the mildew, &c. have them generally as a part of their food, even

even to the end of May. They use no other preparation of this root than boiling them in the common mode. Some persons make starch from them, by the following process: the potatoes are grated down in a tub, with a grater made of tin, allowed to remain there for a night, when the water is drawn off, and fresh water poured on the mass; after which, the mass is sythed through a coarse cloth, and fresh water poured on the pulp which has passed through the cloth; which watering is repeated once a day for a week, pouring off the stale and putting fresh water on the farinaceous sediment, until the water is as clear when poured off as when applied. This sediment is then allowed to dry in the sun until it assumes the consistence of starch. In the last water a little Prussian blue is mixed, to give the starch a pale colour. Families calculate, that by this process they have starch at about 4*d.* per pound, valuing the potatoes at the current price of the county, viz. from 8*s.* to 10*s.* per boll of 24 stone. In these cases they reckon their labour as nothing.

From the experience of an abundant crop of oats after a potatoe crop, and both without manure, the opinion is, that a potatoe crop rather improves the soil. Potatoes are considered as too much an article of human food, to bestow any of them upon their cattle. A few gentlemen farmers, however, who raise a considerable quantity of this valuable root, give a part of them in the spring to their horses and cows.

Salt being a scarce commodity in this county, the lower class of people, within a reasonable distance of the sea, use an equal quantity of salt and fresh water in boiling their potatoes, and they find it answer well. They even allege, that potatoes thus boiled, eat better, and seem more mealy, than if boiled in fresh water. Some families

families boil and mash the potatoes, lay them by to cool, and next morning slice down the mass, which is toasted, and used as a substitute for bread to breakfast.

SECT. XV.—CLOVER AND RYE-GRASS.

The only artificial grasses cultivated in this county are clover and rye-grass, and those even on a limited scale, by a few of the proprietors and gentlemen farmers: these seeds are sown with bear about the latter end of May, the soil being twice ploughed and manured. The quantity of seed to the acre is from two to three bushels of rye-grass, and from ten to sixteen of red clover, or ten pounds of red and five pounds of white clover seed. The crop is generally preserved for hay, which is cut about the first week of July, and the foggage is used for stall-feeding the farm-horses in September.

In general, there are two hay crops taken off the land thus sown, before the ley is broken up for oats. The rotation of this crop is not regular, nor the clover and rye-grass crops so general, as to warrant any opinion of its effect upon the soil, although that is experienced in counties where the land has undergone repeated rotations of clover crops.

SECT. XVI.—FLAX.

The tenants in the vicinity of the town of Dornoch each sow small quantities of flax-seed. The land is twice ploughed, but not manured, experience having proved to them, that manure makes the flax grow reedy and coarse.

It

It is sown the latter end of April, or beginning of May; weeded through the summer, pulled about the end of August, and watered in September, in pools of stagnant water. When thoroughly saturated, it is taken out, spread upon bare grass ground, and turned to the sun for some time; then bound in small bunches of a handful each, and dried upon ropes in their dwelling-houses. When dry, it is broke, scutched, heckled, and spun by the females of the family, there being no flax-mills in the county.

If the farmers of this county were to keep their flax until the succeeding June, before it was watered, it would benefit them much. In June they would always have as warm weather for watering their flax as the Irish have in September; and when their flax is fully watered, they might spread it thin on the longest foggage they can command, in place of bare pasture ground, and they need not turn it, as is done on bare ground: the grasses issuing from the strong vegetation of their foggage land, is beneficial to the preparation of flax in this process.

Flax is supposed to be a scourging crop, and therefore not repeated in the same spot. Dutch flax-seed should be sown in haugh or clayey soil, and American seed in the upland or light soil.

There is no hemp sown in this county, nor any other species of crop, except what has been already described.

CHAP. VIII.

GRASS LAND.

THIS county, like all the other Highland counties of Scotland, has no other meadows than the levels formed by the meandering course of their rivers and burns, and the borders about the lower end of arable land: these are preserved from cattle, from the end of April until the last week of July, when the hay-harvest generally commences. The bog, or meadow hay, is commonly mowed by the tenants and their family, except in cases where the extent of the farm gives such a quantity of this haugh meadow, that a greater number of hands are necessary, when the farmer hires perhaps a dozen hands in a day, who are paid from 1*s.* to 1*s.* 6*d.* and two meals; and the farm-servants are busy at the same time, carrying off the hay cut down, to an eminence above the overflowing of the rivers or burns, which often happen in the month of August in that mountainous region.

The hay thus collected is put in small coles, and shaken once or twice a day (if the weather be fair) for a week, when it is ready to be packed into small shocks (provincially called *screws*), secured with ropes made of heather; where it remains until the corn harvest is over, and is then carried into the corn-yard, and rebuilt into stacks or screws for the winter. This practice prevails along the several straths of the rivers in the county.

Upon the sea-coast on the south-east, western, or northern

ern sides of the county, there is very little of this kind of meadow, from the rapidity of the streams. The straths in general are narrow, and of course the extent of this haugh ground not great on any one farm.

I did not find that any experiment had been made to ascertain the quantity of natural hay which an acre of this kind of meadow would yield; but from its appearance, it may vary from 50 to 150 stone per acre, according to the quality of the haugh soil.

Soon after the hay is carried off, these meadows are depastured by cattle and horses promiscuously, until the following May. The only manure this ground receives is the overflowing of the rivers, which is sufficient where the current is not rapid.

It does not appear that embankments would be of much benefit in these straths, where the mountain floods come occasionally so rapid, that they carry all artificial banks before them; and in the interior of the country, the climate is too moist, to admit of such attempts for the purposes of agriculture. Indeed the Highland parts of these straths are now, or will soon be occupied by the shepherd and his flock, who will consider this meadow of great advantage, for hay to his flock in a severe spring.

The pastures on the sides of rivers, and where the soil does not yield vegetation fit for hay, are generally the summer food for their milk cows.

As these meadows and pastures are parts of the same farm, the rent of either is not ascertained in this county: an acre of flat meadow may be considered equal in value to an acre of arable land, as its produce is procured at little expense.

Dairy Ground.—Before the introduction of sheep-farming

farming into this county, the tenants of the strathis had their grazings, called *shealings*, in the remote parts, near the sources of the rivers and brooks: every town-land, davoch (ten-penny land), and even each farm, had their distinct shealings (called in Gaelic, *arie*). About the beginning of April a keeper (called a *poindler*) was hired to preserve the grass of these shealings, and drive off or pound any straggling cattle that might trespass on the preserved grounds. About the middle of June, when the crop was sown, and the peats cut for winter fuel, a part of the family removed with the milk cows and goats to the shealing, an old hut being previously repaired, or a new one constructed, having an apartment for the people to eat and sleep in, and another for the milk: each of the apartments are about twelve feet square. Perhaps there may be another room, or small fold, for the calves, to keep them from the cows until milking time. Here they lived in great simplicity, on the produce of the dairy, and some oatmeal, contented, healthy, athletic, and cheerful: this is the season for singing and dancing on the green: the women, while milking the cows, sing a certain plaintive *air* (of which the cows seem very fond), similar to the *Ran de Vache* sung in Switzerland. The men occasionally return to the homestead to collect their peats, weed their potatoes, &c. and to see that the pasture is well preserved for the return of the mistress of the house with her cows from the shealing. They return about the beginning of August, leaving their horses and yell cattle to pasture on the shealing during the remainder of the season, even till Christmas, or until the stormy snow drive them to the homesteading, where they barely subsist on a little straw or hay until the ensuing summer.

CHAP. IX.

GARDENS AND ORCHARDS.

IN ancient times the Romish clergy introduced the art of horticulture into Scotland, and so far as their own exertions went, choice gardens and orchards were found in various parts; but in those days the natives of Scotland were of a restless, warlike turn, and their holdings in general depended on the will of the Chief; that refinement in agriculture and horticulture therefore was despised by them, and its progress was very slow. In the county under review, there are a few instances of what can be accomplished by art and industry, even in this northern climate. Skibo, situated on the northern banks of the Frith of Dornoch, and about three miles from that town, was, in the time of episcopacy, the summer residence of the Bishop of Caithness and Sutherland (both counties composed only one bishoprick). Here the Bishop had excellent gardens and orchards, which are still kept in good order by the present proprietor. In these gardens the peach and apricot thrive; and in summer 1794, walnuts ripened in the gardens of Skibo.

At Dunrobin Castle there is an excellent garden and orchard: both there and at Skibo, apples, pears, and cherries, thrive well; they are both sheltered from the north and west, with a fine south easterly exposure. In the gardens of several of the gentlemen farmers and wadsetters on the south-east coast of Sutherland, apple trees seem to have done better some years ago than now, as there are

several large old apple trees in many of them which still bear fruit, and by a little more attention would thrive, and produce abundant crops. In all of them, small fruit, such as black, white, and red currants, gooseberries, raspberries, &c. bear a plentiful crop.

About twenty-six years ago, each garden in this part of the county had a few bee-hives, which prospered, and yielded plenty of fine honey; but of late years, the seasons have been so cold, and perhaps the necessary attention not paid to them, that they are now almost totally given up. Every kind of roots used in the kitchen, are raised in these gardens. At Tongue, the residence of Lord Reay, there is a neat garden, with apple and pear trees, and abundance of small fruit.

The cottagers' gardens, as before observed, contain only some cabbages and potatoes.

Destruction of Insects and Grub.—The caterpillar is the most troublesome to the small fruit, particularly the gooseberries. Various plans have been tried to destroy, or check the progress of this destructive insect, such as tobacco juice, lime, soot and water; the latter seems more effective than any other remedy. The only orchards in this county are those above mentioned, and of course none are rented. The plants were brought from the south of Scotland, after they were grafted, but those grafted in the county thrive better. In the garden of Morvich, at the end of Loch-fleet, there are two very large pear trees which bear plentiful crops. This place is well sheltered from the north-west winds by bold high rocks and mountains.

CHAP. X.

WOODS AND PLANTATIONS.

THERE are about 150 acres of oak copse at Criech, on the north bank of the Frith of Dornoch, the joint property of Mr. Dempster and Mr. Houston: at the age of fifteen years it is cut, principally for the bark. Mr. Sinclair from Argyleshire purchased sixty acres of it for 250*l.* and he cut the wood, which was purchased partly by the country people to repair the roofs of their cottages, and for implements of husbandry, and partly for charcoal. The oak bark sold at 15*l.* per ton, on the ground, close by the place of shipping it to market: I could not obtain any correct information of its value per acre. Birch bark is reckoned worth 7*l.* per ton.

There are some remains of a shrubbery of birch, hazel, aller, willow, and some oak bushes, in the straths of the several rivers and burns in the county, particularly on the banks of Loch-shin, and Strath-oickel, Strath-more, and Strath-naver, where there are birch and aller of considerable size, fit for agricultural and building purposes; such as ploughs, harrows, and roofs of houses for the country people, but not of so great extent as formerly, and is rapidly decaying in some places. The remains of some oak bushes among the birch and aller, in the straths of Helmsdale, Brora, &c. shew that it once flourished in these straths; but from the constant browsing of black cattle, it is not surprising that the oak is nearly gone. (See Appendix, No. II.) In some instances, where the

more industrious inhabitants of these straths grub up some of this shrubbery to increase their small portion of arable land, the succeeding crops of bear or oats abundantly repay them for their labour.

There is no natural growing fir or beech in this county; yet many of the low peat-mosses in the interior abound with moss fir. In the course of my survey, I saw very large roots of the pine fir dug up out of a flat moss on Strath-fleet, the top of which had the appearance of having been burnt, and measured sixteen inches diameter. The country people have a tradition, that a witch from Denmark burnt all the wood in this country. This fir is dug up by the country people for candle-wood, and they call it, *giuse puil* (bog fir), which they split and dry, and it is the only candle light the cottagers have during their long winter nights. A gentleman of my acquaintance informed me, that about twenty years ago, as he and another gentleman were grouse-shooting on the high ground between the upper branch of Kildonan and Halladale rivers, they saw some Highlanders busy sawing a fir tree they had dug out of the peat-moss there; the tree measured 72 feet in length; they had cross-cut it into four cuts, of about eighteen feet long each, and were sawing one of them into planks, which measured sixteen inches broad, the tree being sixteen inches in the side, after it was squared. At the root end, and about from ten to twelve inches at the other end (the fourth piece, or top of the tree), there were about two feet of peat earth above it, its root being close by the lower end of the tree. The root of the tree had about an inch thick of charcoal on it, which evidently shewed that the tree was burnt down. Its smaller branches had all decayed. They found a great number of smaller trees near it, the centre of them all decayed,

as

as if bored for pumps: this shews, that though the old timber, abounding with rosin, is preserved in peat earth, that young timber, void of that gum, does not. In the same moor, some years before that period, about thirty square logs of fir were discovered, all set close together in a double row, tier upon tier, under two feet of peat earth; and as the source of Halladale river was within half a mile of it, it is supposed that formerly timber was cut down in that forest, and floated down the river to the sea at Tor, or Bighouse-bay; and thence exported, or carried coastways. This timber was found on the declivity of the mountain, and not on a flat bog, which accounts for the little depth of peat earth over it, as that substance is formed by a very slow process on such declivity, and of course of a more coaly and firm black consistence than such earth in flat bogs, where the floods accumulate it from the declivities, and decayed wood, and other vegetables, in these flat swamps, or low ground.

Plantations.—At Dunrobin there are about three hundred acres of Scotch fir planted on the face of the mountains, in a thriving condition, and contiguous to the garden in the low ground, there is a considerable extent of thriving timber, ash, beech, elm, and larch, some of the trees of a large size. There are two ash trees near the stable, at Dunrobin, each of which measure twelve feet in circumference at eight feet from the ground; two oaks in the Ladies' Walk, measure six feet circumference at six feet from the ground; and many from two to three feet. At Uppat there is a plantation of fir. At Gordon-bush, on Strath-brora, there are about forty acres of larch and Scotch fir on a declivity of the hill, in a thriving condition; and near the handsome

dwelling-house of Gordon-bush, is some large timber of ash and oak.

Two oak trees on the west side of the garden, at four feet above the root, measured four feet and a half in circumference Mr. Gordon planted a few acres of Scotch fir on his wadset at Kentradwell, near the sea-shore, about forty years ago, and it now yields planks seven inches broad. At Balvlair, at Cyder-hall, near Dornoch, at Skibo, Pulrossie, Ospidale, and Rose-hall, on the Dornoch Frith, there are several hundred acres of planted Scots firs, all in a thriving state; size from five to nine inches diameter, on an average. The soil in which they were planted was a mixture of sand and pebbly gravel. Upon the 25th December, 1806, during a severe gale of wind, there were two hundred and fifty fir trees blown down at Balvlair, and many at Cyder-hall and Rose-hall.

At Tongue, Lord Reay's domain, there is a plantation of Scotch fir, and ash, elm, and beech, of considerable size: the side of the plantation next the Kyle, or bay of Tongue, owing to the blast from the Northern Ocean, seems much stunted in its growth, the branches taking a horizontal direction from the south side of the stock.

At Shiberscross, or Strath-brora, a pretty romantic place, abounding with shrubbery of birch, aller, and hazel, there are two large trees of Egyptian *thorn*, one of which was injured by the gale on the 25th December, 1806. They were both covered with white blossom in the month of June, when I saw them; there are none else of that species in this county; and as the remains of a Catholic chapel are in the vicinity, it is probable that these two trees might have been planted by the priest of that parish.

The natural woods on the several straths in this county, to the southern, western, and northern coasts, are decaying

ing fast, owing, as naturalists aver, to the severe frosts in the winter and spring seasons for many years past; and it is a well known fact, that in the straths where these woods have already decayed, the ground does not yield a quarter of the grass it did when the wood covered and sheltered it. Of course the inhabitants cannot rear the usual number of cattle, as they must now house them early in winter, and feed, or rather keep them just alive, on straw; whereas in former times their cattle remained in the woods all winter, in good condition, and were ready for the market early in summer. This accounts for the number of cattle which die from starvation on these straths, whenever the spring continues more severe than usual; *and this is one argument in favour of sheep-farming in this county.*—See Mr. Sage's Letter in the Appendix, No. III.

CHAP. XI

WASTES.

MOORS.

IN the parishes of Clyne, Golspie, and Dornoch, on the east coast of Sutherland, there is a considerable extent of low barren ground covered with a little stunted heath. The soil is a red gritty gravel and sand, covered with a thin stratum of moss produced by the annual falling of the leaves of the heather, and the occasional decay of the other parts of that sterile plant. Their present annual value cannot be reckoned above 6*d.* per acre: this kind of moor is the most barren of all soils; the little heath it yields is dwarfish, and very short. It is in a state of common, where sheep with difficulty pick a little food in the winter months. In many cases it is too stony to admit the operation of the plough, but where cottagers have trenched small spots of it for a cabbage or potatoe garden, the larger stones taken out, and the ground manured, it yields a potatoe crop, and afterwards a tolerable crop of oats or bear.

As these moors are within a moderate distance of the sea shore, they should be divided into lots of four acres each, and let to cottagers for fourteen years; the first seven years rent free: the proprietor to give the cottager wood to build his cottage, a pick and spade gratis; and when he brought the first acre of his lot to a state of yielding a turnip crop (which should be the first crop in such

such a dry sterile soil), the proprietor to give him a premium of 20*s*., or such other sum as might be agreed upon, and so for each of the four acres of his lot. Thus, at the end of seven years the cottager would have his four acres in a state of yielding a crop to support his family; and for the next seven years the rent should be very moderate, if he shewed industry, with a proviso in the lease, that if he neglected his little farm, and became indolent, the rent was to be doubled at the ensuing Martinmas, and the lease void and null at the ensuing Whitsunday.

Such of these cottagers as became fishermen should have similar encouragement, in procuring boats, &c. for themselves, with a reasonable credit for the repayment. By following this plan in the district, the proprietor would, at the expense of about 3*l*. per acre, have a tract of barren country brought, in the course of fifteen years, to yield a rent of at least 10*s*. per acre, besides the advantage to the state of such an increase of population; and the inhabitants of the west coast of this county, who have been removed, and are annually removing, to make way for sheep farms, might thus be provided for in their native country, and the baneful consequence of emigration prevented; and as the people on the west coast are fishermen, such a situation as above described would be eligible for them. No doubt for the first two years they would require some aid in meal and bear, to maintain them, which they would be able soon to repay from their industry as fishermen, day-labourers, &c. &c. A great objection to the execution of this plan, is, the great distance at which they are from fuel; but as the proprietor benefits by removing these people for sheep farming, he should sacrifice something to accommodate them, *i. e.* he should import coal, and retail it to them at prime cost and charges only.

In

In addition to this plan, the proprietor should improve thirty or forty acres of this moor, in their vicinity, to convince them that industry will make even that soil productive. This is to be done by trenching the ground where the plough could not operate; collecting sea-weed and shells, ashes, dung, &c. and laying down the first crop of turnips, which is more likely to succeed than potatoes, as their tap-roots go farther down for moisture.

MARSHES OR BOGS.

Near, and to the south-west of the town of Dornoch, there is a peat-bog of 220 acres, separated from the sea shore by a sand bank, and similar ridges of sandy hills on the land side of it. The depth of the peat-moss in this bog is about four feet, and the subsoil sand or clay. It is the property of the Marchioness of Stafford. There are about 100 acres of it improved by individuals in the town. The mode of improvement was thus: first, it was subdivided into small fields by ditches, which carried off the superfluous moisture, then pared and burnt, the ashes spread on the surface, and sown with bear or big: their returns were from four to five bolls per acre. Some plant their lots with potatoes, in lazy-beds, well dunged, which yield a good crop, and afterwards with oats or bear, and grass-seeds, say rye-grass. In all cases where they spread dung with the ashes, the various crops were much better than that with the ashes alone. Though contiguous to the sea, they have no driven ware or sea-weed, the coast being sandy for a considerable distance in the Murray Frith. They cut the first crop of rye-grass, and pasture the succeeding crops until they find it convenient to break it up for oats; then potatoes or turnips, &c. Pasture grass being much wanted in the vicinity

nity of the town, induces these improvers to pasture their lots for several years before breaking it up for corn. The rent is from 4*s*. to 15*s*. per acre.

FORESTS.

The Reay forest, as formerly described, is about 300 square miles of high craggy mountains covered with heath and ling, with shrubbery about their base. This tract has hitherto been occupied by the red deer, some Highland black cattle, and goats, but now principally pastured by the black-faced and Cheviot sheep, the only mode of improvement of which this tract of country is capable*.

HEATHS AND DOWNS.

There are several detached small tracts of heath on the several straths of this county, of very little value in their present state; and the only way by which they can best be improved, is by giving them out in lots of three to four acres to cottagers, under proper regulations and restrictions as to progressive improvements.

There are no grounds in this county that deserve the description of downs, except the Far-out-Head at Durness; being sandy hills of no great extent: subsoil a limestone rock.

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* See additional Report of 1811.

CHAP. XII.

IMPROVEMENTS.

SECT. I.—DRAINING.

THERE is very little done in the county by this mode of improvement: the only instance of it is by drains filled with stone, and covered. The soil in general is too dry, to require this mode of proceeding, in the parts principally capable of agricultural improvement*.

SECT. II.—PARING AND BURNING.

THIS is very little practised in Sutherland. One instance worthy of notice is at Clyne. In May 1806, Major Houston, tenant of Clyne, enclosed, by a deep ditch, four acres of peat bog; he then pared, and collected all the heath, and other surface articles, to a gravel-pit near the bog, twelve feet long by eight feet broad: having then ploughed the bog, and burnt the pared surface in the pit, in order to preserve the ashes more effectually, he carried sea-sand mixed with shells, which he mixed with the ashes: he then spread this compost on the ploughed ground, and immediately sowed it with bear, and rye-grass, and white clover seed. He had a tolerable crop

* See additional Report of 1811.

of

of bear, and in June 1807 a good crop of rye-grass and white clover.

The bog was from two to four feet deep of peat earth. Betwixt it and an adjoining gravelly hill, he made a drain to divert the surface-water, and he conducted the water of a contiguous spring over a part of the bog after the bear crop had been cut down; so far as this spring water extended, the grass was very luxuriant, and much superior to the remainder, which he thought had too little moisture.

In a corner of this lot he planted potatoes in the lazy-bed manner, manured with ashes: the crop was abundant, and in 1807 he had a good crop of bear with grass-seeds, on the potatoe ground.

Major Houston has enclosed about 200 acres of gravelly moor close by this bog, by a stone dyke four feet high, the stones for which he collected off the surface of the moor, a part of which he has planted with Scotch fir and larch, which seem to do well; another part he trenched, from a foot to 18 inches deep, at the expense of an halfpenny per square yard; and after removing the stones thus turned up, the ground was planted with potatoes, manured with stable dung; the second crop turnips, with compost; and the third, bear with grass-seeds; all which proved tolerable good crops.

The Rev. Mr. Walter Ross, Minister of Clyne, improved an acre of the same bog, upon Mr. Smyth's system, thus: first, raising the peat earth into high lazy-beds, with deep trenches between each bed, and planted it with potatoes dunged; the second crop, oats; and the third, bear with grass-seeds. He sowed 13 pecks of bear, and had a return of 16 bolls.

Captain Sutherland, in Brora, near Clyne, enclosed a tract of moory, gravelly ground, by a stone dyke upon the

the same plan as Major Houston's. The part of it bounding the sea shore was sandy links, and in order to prevent the dyke being choked up with the driven sand, he made a number of holes in the dyke near the foundation, 15 inches by a foot, at the distance of every four yards, which has answered his expectation; when the wind blows from the east or the sea, the sand is driven through these holes, and forms little oblong mounds inside the park; and whenever the wind blows from the west, or land-side, these mounds of sand are driven back towards the sea though the holes; which keeps his fences from being choked with sand. He trenched four acres of this enclosed moor, and after collecting the large stones, he manured it with sea-weed or ware, and sowed it with bear; but the returns did not answer his expectation, or refund his expenses; however he perseveres, and he has great merit in improving a soil, which in a state of nature, was not worth one penny per acre.

Mr. M'Pherson, in that vicinity, has enclosed about 30 acres of a similar moor, and by industry will make it productive.

Captain Munro of Uppat, has commenced the trenching system, upon a tract of similar stony, gravelly, moor, and though the trenching will cost him at the rate of 10*l.* per acre, as a sheep farmer it will be an object to him, because in a severe winter, a few acres of such soil near the sea, under a good sward of grass, may save his flock when on the point of starvation on the snow-covered mountains, in the interior of the country.

SECT. III.—MANURING.

Marl.—At Rhieves, near Dunrobin, I found red clay marl of good quality in a limestone quarry, *i. e.* the limestone is in detached blocks among the calcareous clay, and both of good quality. The lime is commonly burnt, and used for building, &c.; but the clay was supposed of no value until I shewed its quality to Mr. Falconer, the Marquis of Stafford's factor.

I have not observed any real shell marl in the county, except in a lake at Durness, on the farm of Keoldale.

Chalk.—None in this county. There is excellent limestone at Kenloch-ailsh, the source of the river Oickel, in the interior of the county near Assynt, in the middle of a sheep farm of 30,000 acres. The limestone might be used to very great advantage for the sheep farmer, by draining, and turning off the surface-water of the contiguous parts of the moors, and then spreading the slacked lime on the surface, to promote the growth of rich natural grass, and destroy the heath.

The manure used along the sea coast, is ware or sea-weed, driven on the shore by storms, and carried to the land on horses' backs in creels or crubans, (a triangular machine made of wood for that purpose); the ware is occasionally spread fresh on the surface of the land, and ploughed in; sometimes it is allowed to wither on the surface, and at other seasons mixed up with earth, by way of compost, and spread on the land at seed-time. By these different modes, they have equally good crops of bear; but the oat crop is not so good as after a manuring of

of house and stable dung compost*. In the inland part of the country, as the tenants have a considerable proportion of cattle for their small portion of arable land, they manure the land for bear with stable dung, which yields a productive crop, and afterwards two of oats, when it escapes mildews or frost in August.

There is no mode of preparing manure in this county, that is worthy of particular notice, either by composts or otherwise.

SECT. IV.—IRRIGATION.

This mode of improvement has not been attempted in this county, beyond what nature effects by the occasional overflowing of the rivers, with the exception of what I have already stated as done by Major Houston, by the water from a small spring upon a part of his improved bog.

* "From the experience of a very intelligent farmer, Joseph Gordon, Esq. of Navedale, it appears that fields manured plentifully with sea-weed in winter, or a less quantity of it in spring (sometimes it is put on after the bear is sown), yields as plentiful a return, and grain of as good quality, as when manured with dung, and next year produces as good crops of beans and pease, but not of oats. Sea-weed put upon land sown with oats, produces from seven to eight returns, but when tried with pease, the straw was found too rank, which perhaps might partly be owing to the wetness of the season when the experiment was tried. Compost dunghills, when mixed with sea-weed, produce a plentiful crop of bear, and assist in producing a good crop of oats the year after."—*Sir John Sinclair's Report of the Northern Counties*, 1795, pp. 141, 142.

CHAP. XIII.

EMBANKMENTS.

AN Embankment is in contemplation in the county, (an account of which will afterwards be given*); which will do credit to the North. The first object is, to secure a safe conveyance across the Little Ferry; but there can hardly be a doubt, that it will ultimately be the means of acquiring a considerable tract of most valuable land, probably equal in fertility to the Carse of Gowrie, or Falkirk.

* See the Report of the Survey of 1811.

CHAP. XIV.

LIVE STOCK.

SECT. I.—CATTLE.

BREED.—At Dunrobin Castle, the Argyle breed of cattle thrive remarkably well, so much so, that in 1807, the stock on that farm was valued and sold at high prices, viz. 80 milch cows at 18*l.* each, and the stots and heifers from two to five years old, at an average of 15*l.* each. This stock had in summer and winter a great command of artificial and natural pasture; of course butter and cheese were made, and good calves were reared, and the sale stock annually sold to the South Country drovers.

In the other parts of the county, the Skye and Assynt breed of black cattle prevail; they are well shaped, short legged, and hardy, the colour in general black, with some exceptions. From the Argyle and Skye bulls at Dunrobin and Skibo, &c. the cross between them and the native cattle is very much improved in shape and quality, in roundness of carcass and pile of hair. The four-year old stots at Dunrobin farm, might weigh from 5 to 6 cwt. the four-quarters, or carcass; and the cattle of the country tenants, about from 240 to 400 lb. avoirdupois the four quarters.

Food.—At Dunrobin, cattle are pastured summer and winter, but they get some hay or straw, and turnips, in severe weather. Throughout the county in general, however,

ever, the cattle are fed with straw in the cow-house at night, and out in the fields through the day, during the winter season. Upon the few farms where turnips are raised, they occasionally give them that root, also bear on the straw, boiled, for cows after dropping their calves. In summer they feed on natural pasture grass, in the fields or shealings.

Management.—None fattened for the market, because there are no markets near them.

Dairy.—It is the general practice to make butter and cheese, and to rear a calf betwixt every two cows. The produce in butter and cheese is various, according to the size of the cow, and quality of the pasture: from a stone of 24 lb. of butter and two stones of cheese, to 2 stone of each per cow, and besides a calf reared by every two cows. The Highland breed are not great milchers*.

Distempers.—The most common distemper among the black cattle in this county is the *black quarter*, which proves fatal to many of their year and two-year olds. This complaint is known by feeling the animal's skin when any symptom of sickness appears; the quarter that is diseased sounds as if there was chaff under the skin. The animal dies in the course of a day, or even a few hours. When the skin is taken off the diseased part it is quite livid, as if the blood was mixed in the flesh. A gentleman in Assynt informed me, that upon a farm of his,

* Some housewives along the coast-side of Sutherland, in order to have fresh butter for breakfast in winter, mix salt butter and sweet milk together, in the proportion of 1 lb. of butter for every chopin (two pints) of milk they can command; put the mixture in a small churn, and churn it, in the same manner as cream is done. The butter thus produced will be quite fresh, and the buttermilk salt.

where he had many cattle, he generally lost half of his young stock, until a few years ago, he was advised to rear swine with his cattle, which he did, and that he lost none since by the *black quarter*. Others say that bleeding the calves in August prevents this disease.

Hydrocephalus (water in the head), provincially called *sturdy*, is a disease to which the young cattle are also liable. Beasts are cured of this complaint by trepaning, or cutting out the bag of water formed, before it gets to a great size. Cures have been effected by putting a drain or seton in the back of the neck.

When cattle are changed from one kind of pasture to another, some of them are seized with a complaint called *blood-grass* (bloody urine). In the Highlands they pretend to cure it by putting a *live trout* down the throat of the beast.

Another disease is termed *elf-shot* by the country people: the animal feels very uneasy, breathes hard, and refuses food: upon observing the cattle thus affected, the women search the animal's hide, and they pretend to find holes, *not* in the skin, but in the membrane under it: these they rub with salt, and they dissolve salt in water wherein silver is dipped; this draught being poured down the animal's throat, and some of it thrown on its ears, and the supposed holes being well rubbed, the animal breathes easier, and in the course of an hour, will eat, and recover. Such as die of this disease have mortified spots in the parts where the holes were found. I should suppose that bleeding copiously on the first symptoms of the distemper, and giving decoction of bark (oak) might be the best cure.

The disease called murrain, or *beasty*, prevailed among the black cattle of this county when the valleys were covered with wood; since these woods have decayed, this

distemper

distemper is little known.—*Symptoms:* the animal was suddenly seized, swelled much, breathed hard, and water run from the eyes: in the course of a few hours it died, and dogs that ate of the carcass were poisoned by it. I have seen instances of cure, thus: some pieces of sooty sods taken from a thatched house, put into a pot or pan, with a coal in the centre of it, which instantly caused a strong sooty smoke; the diseased animal's tongue was drawn out with the hand, and the mouth thus open, held over the smoke for a quarter of an hour, which caused much salivation; then a pint of strong ale, with an equal quantity of the decoction of common field plantain warmed, was poured down the animal's throat, which generally proved a successful cure.

The Irish call a distemper very like the murrain, by the name of *blisters*. I once saw a cow, (the property of a farmer in the county of Cork), fall down, swelled, breathing hard, and the eyes running down with water. He instantly sent for a cow doctor, who, when he saw the animal, said it was the blisters: he ordered two men to hold the cow, and draw out her tongue, and under it he shewed me two blobs or blisters, of the size of a walnut, which he pierced with a large needle, and cut with his knife, then rubbed some salt on it; immediately the cow breathed freely, the great swelling or expansion of her stomach subsided; she soon got up and ate some hay given her, and recovered. This man told me, that these blisters prevented the cow's breathing; which would cause her death in a few hours.

Working Oxen.—Oxen are wrought in carts along the coast-side of Sutherland, and on some farms four oxen are used in the plough with a driver; but no comparative

statement of their labour to that of horses has been made. There is no doubt, that where four oxen and a driver are employed to one plough, but it is more expensive than horses. Their food is generally straw, some hay in the spring; and perhaps turnip, when that root is raised. There are no oxen shod in the county.

The following is the account given of the Sutherland cattle, in the original Survey of the County.

" Sutherland is celebrated for its breed of cattle, which are of two sorts, the coast-side breed, and the native highlanders, the former weighing from 4 to 4½ cwt. and the latter from 3 to 3½ cwt. Of the real highlanders the Assynt breed are reckoned the best, but, by attention and good management, they might still be improved, more especially if no more were reared than could well be supplied with food both summer and winter. It is recommended that the bull should be well shaped and hardy, so as to be able to stand all weathers, with good hair, fine horns, sparkling large eyes, &c.

" The mode of keeping, particularly in the winter season, is absurd in the extreme. Almost all the cattle are housed, commonly under the same roof with their master, where they enjoy the fire smoke in common with the family. This, added to their own warmth, is but ill suited to animals that ought to be hardy; for after being kept all night in the house, they are often put out in cold frosty or wet mornings, thus suffering a sudden transition, which it is hardly possible to withstand.

" A variety of breeds, besides the native ones, has been tried at Dunrobin, as the Galloway, the Fife, the Bakewell, and the Isle of Skye, but on the whole, the native stock of the county, with judicious crossing, and attention to the shape of the individual, seem to answer best. The mode of rearing is, to allow the calves to suck

their

their mothers, as much as to keep them in good condition; the remainder of the milk is applied to the dairy.

" The calves are kept in an enclosure by themselves, separate from their mothers, except when milking. By this means, however, the cows will not give their milk without the calves, which is a bad practice to accustom them to, and makes them sooner to lose their milk entirely. The calves, however, being kept in an enclosure by themselves, they soon learn to eat grass, which facilitates their weaning. After weaning they are allowed to run out in the fields all winter, where there is a shed to shelter them, in which there are racks for hay, when they may lodge and feed at pleasure. By this treatment they thrive, become very hardy, and are in condition to be sent to the grazings in the Highlands, along with the two and three year old stock. They return to the coast-side about the middle of November, and have the run of the fields promiscuously with the other cattle.

" In extreme bad weather, or during great falls of snow, the cattle have some straw given to them, but are kept out night and day. Thus they are treated till they are fit for sale, which makes them very hardy. They are in general sold at from three to five years old. The cows commonly calve about the middle of April, and are kept out all the winter, as well as the other cattle."

SECT. II.—SHEEP.

Breed.—Until the year 1806, the native breed of sheep was general among the tenantry of this county: each had from a dozen to 100 head of them; they were a small kind of sheep, with good wool; some

horned, others poled, some black, but the greater number white, and some of a grey colour. The tenants' wives made blankets, and tartan plaids, of the white and black wool, as well as other clothing for themselves and families; and of the grey wool, stockings and mits (a kind of gloves) were made for the *gudeman*. From the Strath-naver and Durness district a proportion of the young lambs were annually drove to Caithness, and sold at from 1*s*. 6*d*. to 5*s*. each to the Caithness farmers, to supply their stock; and the three and four year old wedders were annually sold to Caithness butchers.

In the winter of 1806 and spring of 1807, this breed of sheep almost all died of the *rot* and *scab*. The introduction of sheep-farming upon a large scale in this county, has compelled many of the tenantry to emigrate, and those who remain are so circumscribed as to pasturage, that they cannot think of renewing their former flocks of the aborigines. These sheep weighed from 28 to 36 lb. the carcass, or four quarters; the wool of from nine to twelve of them, made a stone of 24 lb.; they were collected in cots at night in the winter time, but seldom got any food except what they picked for themselves, even during a storm of snow. One cart-load of their dung was reckoned equal to three of cattle or horse-dung, for manure.

A few years ago some flocks of the black-faced sheep were introduced into this county, which answered very well; and in 1806, Messrs. Atcheson and Co. took a very extensive sheep-walk of the Marquis of Stafford, in the parish of Lairg, and part of Strath-naver, and they sent 3000 of the Cheviot breed from the borders to commence their stock in that extensive walk; and though the ensuing winter was very stormy, the flock did well, sustaining no greater loss than is common on a sheep farm,

farm, even though this pasture is in the interior of the county, 15 to 20 miles from the sea.

Mr. Dunlop has for some years had a sheep-walk of considerable extent from Lord Reay, in Durness, which he stocked with the Cheviot breed, and they are doing very well.

Several sheep farmers in Assynt, Edderachylis, and Sutherland, have had large flocks of the black-faced breed for these six years past, but they find from experience, that the Cheviot breed is equally hardy with the black-faced, except in the lambing season, when a little more care and attention to the lambs are necessary; that the same extent and quality of pasture will feed an equal number of either breed; that the Cheviot is a more *docile*, and less wandering animal, than the black-faced; that the weight of carcass is nearly equal, *i.e.* the Cheviot sheep will fatten to the same weight as the black-faced, for the market; and lastly, that a stone weight of the Cheviot wool, will sell for 28*s.* when the stone of the black-faced wool will only bring from 7*s.* to 10*s.* at market; and that, at an average, seven fleeces of either will make a stone of wool. All these considerations induce the sheep farmers in this county to get rid of the black-faced sheep as soon as they can, and stock their grounds with the Cheviot.

Food.—The only food provided for them in this county as yet, is some natural meadow hay, cut in season, and preserved for the flock, in case of a deep fall of snow; they allow 1lb. of hay for a sheep in the 24 hours.

Folding.—No experiments have as yet been made in this county, of folding or feeding sheep for the market; for this good reason, that there are no markets or consumption

sumption for them within the county; the over-stock of wedders, &c. for sale, are drove to the southern markets annually in August or September, where the prices vary according to the season and demand, from 18*s.* to 25*s.* per head.

Distempers.—The principal disease to which the Cheviot breed is liable, is the *braxy*, which is more severe in some seasons than in others, especially if the month of August be rainy. Feeding the sheep early in November with turnip, is reckoned a specific for the braxy.

On the mountain and heathy sheep-walks, the proportion of the flock to the extent of pastures will not on an average exceed a sheep to three acres; rent about 3*s.* per head.

SECT. III.—GOATS.

The Highlands of Sutherland were formerly famous for flocks of goats; every farmer had from 20 to 80 of them wandering in the mountains, (they defend themselves from the fox, so destructive to sheep); their flesh served the family for meat; during the summer months they made cheese of their milk, or mixed it with cow-milk, while at their shealings, for the same purpose; their skins sold to pedlars at 1*s.* each, for the southern markets. The spring of 1807 almost annihilated this species in the Highlands of Sutherland; their flocks of goats were infected with the scab and rot, and as no means were used to cure them, very few survived the disease. The red deer pasture with goats, but they cannot bear sheep.

SECT. IV.—HORSES, &c.

Breed.—Upon the extensive farms of the east coast of Sutherland there are large horses kept for the plough and cart, but in the other parts of the district, the native breed of *garrons* are used for the plough, four a-breast, and in some cases three a-breast, with a driver: four of these garrons are generally kept to plough from eight to ten acres of arable land, and where lots are smaller, two tenants join in the ploughing, each providing two garrons. Their food is the pasture of the fields and moors, summer and winter, except that in severe weather they are kept in stables or sheds, where they are fed with straw; and during the spring labour they get some meadow hay. Their price is from four to ten guineas, according to size, and quality; they are from 44 to 52 inches high, their colour black, brown, or grey. In the middle and western districts their expense is very trifling, as they feed in the mountains and glens almost all the year; and in those districts the farmers used to keep numbers of brood mares, and in general their colts were sold when they were about 14 months old, to horse-dealers, who drove them to the Orkney isles, and sold them to advantage, generally by bartering them for five and six year olds, of the same species, which they brought to the Caithness markets in August and September, and had their profit in return. But the extension of sheep-farming has almost put an end to that traffick, as the Cheviot sheep now occupy the former habitation of the hardy Highlander and his horses. These horses were never shod; they travelled over the flinty rocks without any inconvenience.

Harness.

Harness.—The Sutherland tenant prepares his own harness; he makes ropes of the tails and manes of his garrons, brakings and collars of straw, and his plough timber of the wood in his glens; he weaves straw for a cover under the clubbar (saddle), makes sacks for his victual, of the skins of either horses or cattle who die by accident, and his poney will carry a boll of meal, or its weight of grain, in these sacks, one on each side fixed by a rope in the clubbar, or saddle, for many miles over the most rugged paths.

Distempers.—The distempers incident to these hardy animals are few. In cases of ill usage, or over-work, they are liable to the glanders, and sometimes to the strangles or cold, even the scab; but where they are properly used, old age or accident is generally their termination. The glanders is cured by cutting away the diseased glands from the inside of the jaw-bone, and repeatedly washing the wound with sour urine until it shows a disposition to heal.

Asses.—There are a few asses kept by the tenantry on the east coast of Sutherland; they are small, and used for carrying their victual to and from the mills, and carrying sea-weed from the shore to the land; they live to a great age, and their food is generally picked up in the fields and moors, of course is of little value.

Mules.—A few of these animals are in Sutherland, but of too small a breed to be of much benefit; a larger breed of them would be of great convenience to the farmer, as they are hardy, strong, live to a great age, and are not expensive in food, or liable to distempers.

SECT. V.—HOGS.

Breed.—There is a small native breed of hogs kept by the tenants in Sutherland, but often half-starved; when fed with corn, in March, (the time they generally kill them for food), they fatten to about 80 lb. the carcass, or four quarters; but along the coast-side district, they have a larger breed of hogs, (the long-eared kind), generally of a light colour; they feed them on the pasture ground in summer, and in harvest and winter give them some corn, potatoes, and pease, upon which they fatten them for sale, and when killed, they will weigh from 112 to 180 lb. the carcass. When either kind is intended to be fattened, they are confined to the house, fed with oats steeped in cold water, potatoes, &c. and for the last week before they are slaughtered, are fed on pease, which it is supposed hardens their flesh and fat. As there are, comparatively, but few of this species in the county, there is no regular system of breeding or feeding them: those reared on farms where small distilleries are worked, are commonly fed on the grains and wash. They are very subject to leprosy, unless sulphur is frequently given them in their food; and this is the only disease to which they are subject.

SECT. VI.—RABBITS.

Breed.—There are rabbits of the common kind and silver hair, in the sandy links at the Little Ferry, near Dunrobin, and near Dornoch: these links are kept by a person

person employed by the Sutherland family, and not let for rent, or otherways; there is no other food for them but the little benty grass on these links, and of course their numbers do not increase so rapidly as if they were properly fed. There are rabbits in the Rabbit Isle in Tongue-Bay, and in Durness, but they are little attended to.

SECT. VII.—POULTRY, &c.

Sorts.—The more opulent farmers in the south-east district of Sutherland rear fine flocks of turkies for their own use, at no great trouble, as the climate of that district is much more mild than the other parts of the county.

Geese can be reared only where there are tracts of common downs, or green pasture, and as there is but little extent of this soil in Sutherland, the farmers find it cheaper to purchase them from Caithness than to rear them at home. They formerly purchased them in August at 9*d.*, now at 2*s.* each.

Every farmer and cottager's wife, has a flock of common poultry; and where they have the convenience of water ponds near their houses, ducks are also reared in this district, all for family use, as there is no market for them in the county.

Pigeons.—There are pigeon-houses at Dunrobin, Kentradwell, Brora, and on several other gentlemen's farms. The houses are commonly built with stone, and the pigeons reared merely for the family use, and not as an article of profit.

SECT. VIII.—BEES.

About 20 years ago, almost every farmer on the south-east coast of Sutherland had one, two, or three bee-hives, which generally answered very well, but of late years they have not thriven, and many have given them up, as they say that the seasons have been for many years so very indifferent, that bees will not prosper in this district. Captain Baigray at Mid-Garty, perseveres in managing his hives, and collecting his wax and honey, but not so successfully as formerly; he makes it a rule, in warm days to point out the *drones* among the working bees, and has them destroyed, which saves their industrious neighbours that trouble, and preserves his stock of honey.

CHAP. XV.

RURAL ECONOMY.

SOME years ago a male servant had 30*s.* of wages, with three bolls of cost, half oat-meal half bear-meal, and food for a cow, in the half year; the same summer and winter, with ground sufficient to plant two or three pecks of potatoes; and the women servants had from 12*s.* to 16*s.*, with two bolls of meal in the half year. This was the wages of the best farm servants, and others in proportion, according to their skill and abilities. The same servants have now 6*l.* per annum and six bolls of cost, with food for a cow, and some potatoe ground to the male servants; and the female servants 40*s.* to 48*s.* and four bolls of cost in the 12 months; little difference in their cost or wages summer or winter. In harvest, women are hired for the sickle, for which they receive about three firlots of victual, in lieu of cost and wages, until the corn is ingathered and the potatoes dug out of the ground, and pitted, &c.

About 30 years ago a male servant's wages was 30*s.* per ann. and the female servant's 13*s.* 4*d.* At that time a day labourer had 6*d.* per day, and one meal; about 12 years ago 1*s.* and one meal; and now no less than 1*s.* 6*d.* in summer, and nearly so in winter, and in order to have them at that hire, a meal is given them as a retaining fee. Women who hire by the day, have half of the men's wages. The time of labour for hirers by the day, is from six in the morning to six at night in summer; and from eight to four in winter.

When

When piece-work is done, such as ditches, dykes, or trenching ground, it is generally undertaken by the cubic or square yard. A cubic yard of ditch is done from 2*d.* to 3*d.* as the ground is difficult or otherwise; a square yard of dry stone dyke is built at from 3*d.* to 4*d.*

When cottagers are attached to farms, they generally pay a stipulated number of days' labour in spring and harvest, with a trifle of money-rent per annum, for their lot of land. The price of labour is so high, in consequence of the pressure of the war and taxes, that the expense of cost and wages to servants, &c. fit to labour a farm, is at an average equal to one-fourth of the rent paid to the proprietor, a rent, considering soil and climate, much greater than what is paid in England.

Provisions.—Oatmeal, bear, and pease, varied in price for the last six years, from 15*s.* to 2*l.* per boll; little can be said as to the price of meat, as there are no markets to regulate them; so that the laird, farmer, and mechanic, furnish their own in the cheapest manner they can. In the town of Dornoch, beef and mutton sell at from 4*d.* to 6*d.* per lb.

Fuel.—The principal fuel in this county is peats, which are in general of good quality, and (the south-east coast excepted) easy of access. Along that coast, the gentlemen join for a cargo of coals from Sunderland, or the Frith of Forth, which they can have at from 18*s.* to 24*s.* per ton, delivered on the shore. The mode of cutting and preparing their peats, has nothing singular in it worthy of notice; it is similar to the practice in all highland districts.

CHAP. XVI.

POLITICAL ECONOMY;

CIRCUMSTANCES DEPENDING ON LEGISLATIVE AUTHORITY.

SECT. I.—ROADS.

THERE are no turnpike-roads in this county. About twenty years ago some of the roads were lined out, and formed along the south-east coast of Sutherland, from the Mickle Ferry on the south, to the Ord of Caithness, and for 15 miles up along the strath of Oickel, on the Sutherland side of the Kyle, to the Bonar. This was accomplished by statute labour; but as the several rivers and rapid burns issuing from the mountains to the sea along the coast, were without bridges, (except the river Brora), the communication might be said to be stopt with floods of rain. By the late Act of Parliament for making roads and bridges in the Highlands of Scotland, aid is allowed by Government, and this county has availed itself of that act. The money payable by the county, has been deposited, and the turnpike-road along the south-east coast of Sutherland, from Portenlick to the Ord of Caithness, has been commenced, and bridges will soon be erected over the rivers and burns in that line, which will prove of great convenience to travellers, as well as to that district of the country. Similar lines of road are intended to be made from Portenlick through the interior

rior of the county to Tongue, the residence of Lord Reay, on the north coast of the county, and along the north coast, from Tongue to the boundary of Caithness.

The materials for the road along the south-east coast is sandy gravel and rock, contiguous to every part of it. The road through the interior will be carried in part through rocky moors, and partly through deep moss, but generally through ground where stony materials are at hand, and the same along the north coast, to Caithness. The expense is from 2*s.* to 3*s.* per yard. All the roads hitherto formed in this county are convex, and from 18 to 24 feet broad: water is not applied to cleanse them, nor is there any railways or canals in the county.

SECT. II.—FAIRS.

THERE are fairs held at Dornoch, one in February, one in March, one in July, one in November, and one in December, and also a small fair at Torsdale in July, annually. At these fairs the country people sell or barter their commodities and simple fabrics of woollen stuff, yarn, &c. The Bars-fair held at Dornoch in November, is principally a cattle tryst, the only regular one held within the county*.

The population of Dornoch is so small, that a regular weekly market can hardly be expected. (For the ancient fairs, see Appendix, No. II.)

* See Report in 1811, for the newly established cattle fairs.

SECT. III.—WEIGHTS AND MEASURES.

LAND is measured in acres, roods and faels, by the Scotch chain of 100 links, or 25 yards long, say 24 ells.

Corn is measured by the firlot, four of which make a boll, equal to 6 bushels and 12 quarts Winchester measure. In the sale of Blainsley oats, it is customary among the farmers on the south coast, (the grain district), to give five firlots to the boll, which in that case is in value equal to a boll of bear of four firlots; their pease measure is four Winchester bushels; potatoes are sold by the peck of 28lb. Dutch, 16 pecks to the boll. Liquids are measured by the Scotch pint, which is equal to four English pints; wood by the solid foot of 1728 solid inches; wool by the stone of 24 lb. English weight; butter and cheese by the stone of 21 lb. Dutch weight.

Price of Products compared with Expense.—In a district where there are no regular accounts kept of the various expenditure on a farm throughout the year, it is not easy to give, with any degree of accuracy, a comparative view between the expense and returns. The small tenants generally work their farms by their own labour and that of their children, by which they save servants' wages; but the gentleman farmer has all the labour done by hired servants, the expense of which is in many cases more than the rent payable to the landlord; added to which, the tear and wear of utensils, and farm stock, when timber, iron, and ropes are so high priced, leave his profits from agriculture but very little. The Highland farmer, on the other hand, whose staple commodity is cattle and sheep, and of course little outlay on servants

or

or utensils, would have greater profits, were it not for the uncertainty of markets, and the fluctuation of prices, and his frequent losses by keeping an over-stock, which must starve the whole, when the spring is more severe than the average run of seasons. This risk, as observed in a former part of this Report, they do not sufficiently consider. Regular trysts or markets for black cattle, are much wanted in this county.

SECT. IV.—MANUFACTURES AND COMMERCE.

The only manufacture established in this county was a cotton one at Spinningdale, two miles east of Criech, about 20 years ago, by a company of Glasgow gentlemen, with a capital of 3000*l*. It consisted of 36 jennies, 136 spindles each, and employed 100 hands. For the first ten years it was not considered a profitable concern, as the company trusted to the natives for hands to work the machinery, who were ignorant, and would not work at the Glasgow wages.

Afterwards another company from Glasgow purchased the machinery, and sent hands from Lanarkshire to work it: these shewed the natives how to earn a livelihood at the usual wages, and all were going well on, until the year 1806, when the whole establishment was burnt by accident, and the company gave up the concern. While it prospered, about twenty perpetual feus had been taken, and houses built thereon in the vicinity of the manufactory, and had it continued, a thriving village would have been soon erected, fuel being near, and being contiguous to the Kyle, or Frith of Dornoch, which is here three miles broad, where salmon, cuddings,

and flounders, are caught in abundance; and at the village of Spinningdale, vessels of 50 tons can land their cargoes. This Frith is navigable for seven miles, with vessels of considerable burden, such as can pass the bar called the Gizzing Briggs, on which are four fathom water at spring tides, and seven feet less with neap tides; and the Kyle is navigable by small craft for 15 miles farther, in all 22 miles.

When this manufactory was erected, Mr. Dempster, the proprietor of the adjoining estate, commuted the services of the tenants, and gave liberal encouragement to new settlers, to improve the waste moor in that neighbourhood. Improvements were going on rapidly, but the destruction of the manufactory put an end to all their prospects and exertions.

There is no other manufacture carried on in this county, if we except the spinning of flax by the country women, furnished to them by the retail shop-keepers, who acted as agents for the Aberdeen merchants. A woman earned about *3d.* per day at spinning flax; many of the young women employed themselves thus through the winter months, and engaged in summer as farm servants. The shutting of the ports of the continent against our commerce, put an end to this business in Sutherland. Black cattle, salmon, and kelp, sheep and wool, are the only articles of export from this district. All the corn for sale on the south-east coast is generally required and purchased by the Highlanders in the interior of the county, and those of the western and northern coasts are supplied with grain from the county of Caithness.

SECT. V.—THE POOR.

THERE are no poors' rates. A statement of the annual receipt and expenditure of the funds of the poor, arising from voluntary subscriptions, will be found in the Appendix.

SECT. VI.—POPULATION.

I COULD not procure tables of births, deaths, and burials, of the whole district under review. From what could be collected, the population of the several parishes is according to the annexed statistical table. The decrease of population, is entirely owing to the progress of sheep farms in the county. Although the produce of this county did not maintain the inhabitants for time immemorial, yet as it is a Highland district, and their staple commodity being black cattle, they at all times had the means of purchasing corn from the neighbouring county of Caithness; and as many of the young men went into the army, and the women occasionally, during the harvest, to the southern counties of Scotland, the county might be called a nursery of brave, hardy Highlanders, not over-peopled; yet an agriculturist from the south of Scotland would be apt to conclude that there were more people in it, than could be well employed in Agriculture.

The climate is so healthy, that one medical man is all that can earn a livelihood from his profession in the whole county.

SECT. VII.—FOOD, AND MODE OF LIVING.

THE inhabitants near the coast-side live principally upon fish, potatoes, milk, and oat, or barley-cakes. Those in the interior, or more Highland part, feed upon mutton, butter, cheese, milk, and cream, with oat or barley-meal cakes, during the summer months. They live well, and indolent, of course are robust and healthy. In winter the more opulent subsist upon potatoes, beef, mutton, and milk; but the poorer class live upon potatoes and milk, and at times a little oat or barley cakes. In times of scarcity, in summer, they bleed their cattle, and after dividing it into square cakes, they boil it, and eat it with milk or whey, instead of bread.

CHAP. XVII.

OBSTACLES TO IMPROVEMENT.

Capital.—The principal tacksmen in this county have capital, and hold their lands upon 19 to 21 years' leases; but their sub-tenants, to whom they let the outskirts of their farms from year to year, at an agreed rent, and personal services, having little capital and no leases, cannot be supposed to do any thing in the way of agricultural improvement. This has hitherto been the principal bar to those improvements, along the south-east coast, the north coast, and for six or eight miles up the several straths. In the interior of the county, where cattle and mountain horses were the staple commodity, any attempt at agricultural improvement would be blasted, by the frequent hoar frosts, and mildews, in July and August.

The system of tacksmen having sub-tenants, is now nearly done away on the Sutherland estate. Leases for 21 years are given along the south-east coast to intelligent farmers, of from 50 to 150 acres of land, which they are bound to labour, occupy, and improve; and the small tenants who hitherto held these lands, became cottagers, and are employed by these tacksmen as day-labourers, at from 1*s.* to 1*s.* 6*d.* per day. In this manner, or as farm servants, at the present high wages, that class of society may be more comfortable and live better than they could have done as tenants, labouring a small lot of land, and paying personal

personal services to their superiors. The present price of iron, timber, and labour of mechanics, are so high, that the necessary expenditure of the farmer, exclusive of the rent, makes his profits not equal to the interest of the capital requisite to stock the farm.

There are no agricultural libraries, or cheap publications circulated in this county, to disseminate knowledge among the country people, except the Farmer's Magazine, a periodical publication of much use.

Enemies.—The red or wire-worm, slug, or even the grub, are not much complained of in this county. Until the year 1798 no rats were known to live in the county of Sutherland; it was even maintained, that if Sutherland earth was carried to a house infested with rats in other districts, the rats would instantly quit their possession.

It is an old idea, that rats will not live in Sutherland. Sir Robert Gordon's printed edition, anno 1630, p. 7, says, "there is not a rat in Sutherland; and if any do come thither in ships from other parts (as often happeneth), they die presently as soon as they smell the air of the country, and which is strange, there are many of them in Caithness."

In 1798 a vessel was stranded at Kentradwell, in the parish of Clyne, on the south-east coast of Sutherland, having no person on board: from this vessel a few rats took possession of a corn mill in the vicinity, where they increased in number, and spread through that part of the county, and were found very troublesome and destructive.

Sparrows are also destructive to the corn in harvest, and no means have been used to prevent them, except shooting them. In the plantations of Dunrobin, Balvlair,

vlair, and other parts of the coast, there are many flocks of rooks, which annoy the farmer in harvest time; but it is thought that the number of the grub, slug, and other vermin they pick up in the spring, more than compensates for the damage done by them in harvest, and they are not much molested.

There are foxes, eagles, and hawks, who annoy the sheep farmer; and fox-hunters are employed with hounds and guns to destroy them: a certain sum is allowed the fox-hunter for every pair of fox's ears he produces, besides a stipulated yearly salary It will take time, much labour, and expense, to destroy the foxes in this extensive and mountainous district. There are badgers in the bogs and rivers, some pole-cats in the rocky mountains, and weazels.

Game.—The species of game in this county are, red deer, roe, hares, black cock and heath hen, tarmakin, grouse, plover, and snipes. There are two kinds of wild ducks: the stock duck, or large kind, and the duckess, or small kind; the thrush, lark and linnet, sparrow, red robin, and chaff-finch, &c. in the shrubbery. Wild pigeons and whuaps, or sea piats, at the sea shores; also starlings, and the different kinds of sea gulls, &c. There are also partridges, woodcocks, teals, fieldfares, (here, by the country people, improperly called blackbird) and a kind of white mountain hare, different from the common hare. In short, here are every kind of game found in Great Britain, excepting pheasants, which would certainly thrive in the neighbourhood of Dunrobin castle.

CHAP. XVIII.

MISCELLANEOUS PARTICULARS.

THERE are no Agricultural Societies established in this county; but as farming has taken a more improved turn on the coast of Sutherland bordering the Moray Frith, a Society along that coast, to have centrical meetings for the purpose of useful discussions, would materially promote the interests of agriculture in that district.

There is a packet established between the Little Ferry in Sutherland, and Burgh-head in Morayshire, to traffick in the commodities of these counties, which may become beneficial to both, in transporting corn, cattle, wool, fish, and coal; and if the seal-fishery commenced on the Little Ferry proves successful, seal oil may become an article of export. A muscle bank at the Little Ferry may also be made productive, by the sale of that shell-fish for bait to the fishermen on the sea coasts of Ross and Moray shires. Fat cattle may be also transported from Sutherland to the Inverness market by that vessel.

CONCLUSION.

MEANS OF IMPROVEMENT, AND THE MEASURES CALCULATED FOR THAT PURPOSE.

ALONG the south-east coast, or arable district of Sutherland, the land in general is a warm, kindly soil, capable of raising excellent green crops as well as corn. From the quantity of sea-weed, shells, and calcareous sand, along the shore, compost dunghills could be formed sufficient to keep the arable land in good condition: the only plan wanted then, is to divide this tract of country into lots or farms from hill to sea: the proprietor to grant such leases as will induce men of capital to cultivate and improve the soil, enclose and subdivide their farms, and follow a rotation of crops according to the modern system of husbandry in the southern parts of Scotland. As the interior of the county is already partly depopulated for sheep-farms, these speculators in sheep-farming would find it their interest to have lots or farms on the coast side, where they could have turnip, hay, and even reserved pasturage, near the sea shore, to drive their flocks to, in a severe season, to save them from disease and starvation, and more particularly so, as turnips are considered as the only specific hitherto known against the *braxy*.

To prevent emigration, the Noble Proprietor should give liberal encouragement for forming villages and fishing stations at Golspie, Kilgower, and Helmsdale; but the distance to which they must go for fuel, with the

the badness of the road, would be a great objection to this laudable undertaking*; and their general poverty and want of resources, would not admit of their paying for coal, which, including the necessary freight and duties, would cost at least a guinea per ton.

The advantage of encouraging the fisheries, is already experienced upon the western coast of this county, as stated in p. 18.

At Scoury, and the end of Loch-laxford, in the parish of Edderachylis, fishing stations might be established; Loch-laxford has good anchorage, and shelter for ships of any burden, in from ten to six fathom water. The herring frequents this loch in the season; and all the way from Cape Wrath to Rou stoire in Assynt, there are abundance of cod and ling to be had at no great distance from the shore. In the event of a gale of wind, the boats have ready access and shelter in Loch-laxford, or Loch-inchard, to the north of it. A moderate expense would recover about twenty acres of strong blue clayey soil from the upper end of Loch-laxford, by stemming the tide between an island and the shore, which might be converted to arable land.

In the valley from Golspie to Kinauld, in Strathfleet, much might be done by draining and embanking a tract containing now about 700 acres of arable land; and by draining the low ground between Culmalie and Drumay, a considerable tract might be made arable. The neighbouring sands of the Little Ferry, or river Fleet, abounds with cockle and other sea shells, for manure, as before stated in this Report.

At Morvich, a tract of strong blue clay might be re-

* The people of Helmsdale might easily be supplied with peat from the neighbouring estate of Langwell, in Caithness.

covered

covered from the tides by embankment, in addition to a tract of strong coarse land already bordering on the river; an equal tract of deep peat-moss, with roots of moss fir, might be converted to arable land by spreading the blue clay on the surface of the moss, previously reduced by burning, &c.

As the soil in almost all this county is a light loam of black earth, with a mixture of sand or pebbles, it wants tenacity, and of course does not retain moisture; in every case, therefore, where *clay* could be had at a moderate expense, a top-dressing of it, on the arable land, would be of much benefit, as it would tend to make the soil fitter to retain moisture, and would exclude the bad effects of scorching winds, &c. in a dry season, which inconvenience is much felt on the south-east coast of Sutherland.

The Cove of Cork, in the south of Ireland, abounds with a muddy sand and clay, similar to what is found in the river Fleet, in the county under review; and the writer hereof, has seen the Irish tenantry carry that muddy stuff, from the Cove, for ten miles up the country, as a top-dressing to their arable land, which consists of the same kind of black loam as the soil in this county. Experience taught them that the produce paid well for this extra labour.

While the present system prevails, of black cattle being the staple commodity of the county, regular annual fairs or trysts for the sale of cattle, ought to be established in various parts of the county, that cattle-dealers from the south of Scotland might be induced to attend them with ready money. Hitherto the farmers are under the necessity of selling their cattle to adventurers, who take them on credit, and if they succeed in disposing of them at the southern markets to advantage, they return

and

and pay the people: if otherwise, they demand so much per head, as discount, which is generally given. An instance of this happened a few years ago, when the drover returned, and told a doleful story of losses: at a general meeting of his creditors it was agreed to give a discount of 20*s*. per head, though the original price would not probably exceed 45*s*. each.

ADDITIONAL REPORT

OF THE

MORE RECENT IMPROVEMENTS

IN THE

COUNTY OF SUTHERLAND,

DRAWN UP IN CONSEQUENCE OF

A NEW SURVEY

BY CAPTAIN JOHN HENDERSON,

IN AUGUST, 1811.

ADDITIONAL REPORT,

&c. &c.

AT the desire of the President of the Board of Agriculture, the Reporter went to Sutherland in August 1811, in order to examine what improvements were going forward in the county in general, but more especially on the extensive estate of Sutherland, since the year 1807, when his original Survey had taken place; and he was much gratified to find, that within the last two years, a general reform had begun in the management of land on the Eastern Coast of the county, and that several farms were getting under the most approved rotation, in so far as the occupiers, (intelligent farmers from Morayshire), believed the soil and local situation would admit of it: and perhaps better Farm Offices are not to be found in Scotland, at least Mr. John Shirreff, late of Captainhead, so much approved of them, that he applied for a plan, that a friend of his, now settled in Suffolk, might adopt the same construction.

The Marquis and Marchioness of Stafford, have given the most pointed instructions to their Manager, to carry on the improvements on their estates, both in the Lowlands and Highlands, on a scale, perhaps more extensive than has hitherto been attempted in the North; and Earl Gower has spent some time in Sutherland, superintending the general plan of management over the estate, and on the farms of Skelbo and Achavander in particular, of which his Lordship has taken a lease.

Short as the time is, since these improvements commenced, the face of the country is wonderfully changed: a better proof of what may be expected, cannot be given, than by stating, that the farm of Skelbo, was, last year, (both land and houses), an entire ruin; now, a set of farm offices, with thrashing and meal-mills to go by water, all of the most commodious and substantial construction, have been erected; roads in all necessary directions have been completed; stone enclosures are now building, and this farm of 280 acres, besides 40 acres of cow pasture, after being dressed, dunged, and limed, is to be put under a rotation of, 1. Turnips and Potatoes; 2. Barley, Bear, or Wheat; 3. Clover, and 4. Oats.

Lord Gower has also trenched two acres of haugh ground for willows, which, with five acres more at Dunrobin Mains, have been let at 9*l.* per acre to a basket-maker from Edinburgh, who is to settle in the county.

His Lordship has brought a stallion and three mares, the best that could be found in Suffolk, to improve the breed of horses in the north; and his other working stock, consist of Clydesdale and Moray-shire horses, with oxen from Moray-shire. His cows are from Banff-shire. They combine good shape with abundance of milk, and crossed with the Dunrobin bulls, which are real Argyle-shire, will, it is supposed, produce a very useful breed of cattle.

Neat stone cottages are already built for some of the dispossessed tenants, who get three acres of improvable moor land, and ground for a garden, and are allowed 10*l.* for trenching each acre, in such proportions as they choose to execute the work: other tenants, who wish for larger allotments, get from 10 to 25 acres, on a nineteen years lease, and Lord Gower ploughs the ground

ground for them, with his farm horses. The people seem quite satisfied, and are now pressing hard for lime, which is to be furnished for them; a certain proof of their future prosperity.

In arranging farms, both arable and pasture, the Marquis and Marchioness's uniform instructions are, *to attend to the people.* Cottages of various descriptions, suited to their circumstances, are to be erected for widows and old men, and those who prefer it, are getting allotments of ground near churches and mosses. Some of them prefer building for themselves.

The new tenants have also begun to build their houses on plans previously agreed upon, and according to the size of their farms; and while substantial convenience is studied, economy is not neglected.

Villages, both maritime and inland, are begun, and leases of 99 years are given for house and garden-ground, and to each tenement, two or three acres for the keep of a cow will be allotted, on an adequate duration of lease, and reasonable terms of rent.

Carding mills, (a prelude to more extensive manufactures), will be encouraged; and fishermen from the East Coast of Scotland, have offered to settle in the county, when houses are finished for them.

Coal has been bored for, and found on the banks of the river Brora, on the Sutherland estate, and a shaft is now sinking, to the depth of 250 feet, (a particular account of the strata is annexed), under the superintendance of Mr. Wm. Hughes, an eminent engineer from Wales. Salt will be made, as has formerly been done in that vicinity; ironstone may be found, (appearances of it being observed in boring for coal), and the shores abound with limestone.

With all these promising appearances, the Marquis

and Marchioness of Stafford have directed, that no hazardous or speculative attempts shall be made, knowing well, that in a new country, failures and want of success, in any works undertaken, have the most baneful effects, and a certain tendency to throw back useful improvements.

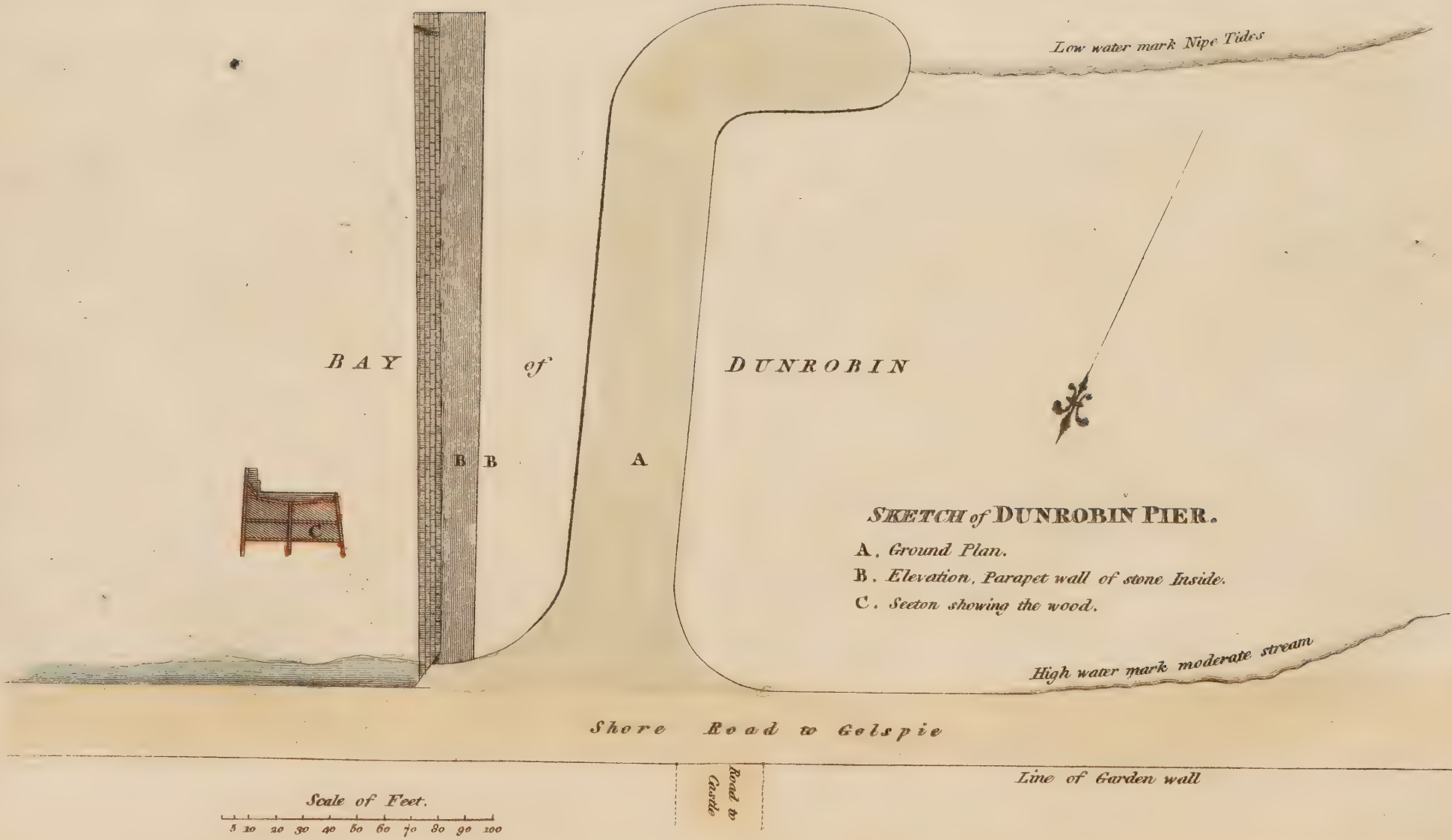
Lord Gower proposed this season (an. 1811), to plant 200 acres near his farm of Skelbo, in the parish of Dornoch, with hard wood, larch, and Scotch fir; and other plantations of fir, &c. are to be made, wherever suitable situations can be found, in each parish on the Sutherland estate.

In 1807, there was only one imperfect thrashing-machine in the county, as then stated; there is now a thrashing machine at Dunrobin Mains, and water conducted from the burn of Golspie to work it, which also serves to water the willow plantation, and, when required, serves the dairy. Pipes also may be conducted from it to the Castle; a supply may likewise be had for irrigating several fields in the Mains; and lastly, it is to be conducted to scour the harbour, where a new pier is now erecting, on the shore near the garden of Dunrobin. (A Sketch of the New Pier is annexed, *Plate* III.)

Formerly the Mains or farm of Dunrobin, was so ill supplied with water, that they were obliged to carry that necessary article in carts from the burn of Golspie, about a mile off, to serve the dairy, &c. in the summer season.

A thrashing-machine is also erected on the Skelbo farm, with a new invented machine for *hummeling* or dressing bear, attached to it, worked by water; one also is now erecting, on each of the new farms of Culmaly, Drumoy, and Kirkton, in the parish of Golspie; and all other necessary improved implements for agricultural purposes are there to be met with. There are now ten thrashing-machines in this county.

In


Low water mark Nipe Tides
BAY of DUNROBIN
B B
A
C
SKETCH of DUNROBIN PIER.
A. Ground Plan.
B. Elevation, Parapet wall of stone Inside.
C. Section showing the wood.
High water mark moderate stream
Shore Road to Golspie
Road to Castle
Line of Garden wall
Scale of Feet.
5 10 20 30 40 50 60 70 80 90 100

In order to ascertain the nature, and the extent of the improvements recently carried on, the Reporter submitted the following Queries to the consideration of William Young, Esq. of Inverugie, (the intelligent gentleman who has the management of the Sutherland estate, and the superintendance and direction of all its recent improvements); who favoured him with answers to the following effect.

1. What may be the extent of the Sutherland estate?

Ans. This estate has been but partially measured; a Land-Surveyor who made some calculation from Arrowsmith's map, believes, that it may extend to about 700,000 Scotch, or 889,560 English acres.

2. What is the extent of arable land?

A. For the above reason, no accurate account can be given of the extent of arable land. It is supposed there may be about 7000 Scotch, or 8895 English acres, on the east coast alone, and the straths adjoining to it.

3. What is the extent of the natural woods; also of land planted?

A. The natural woods have been much demolished, by the practice of cutting them down for bark to tan their leather. The extent cannot be determined: the few plantations are confined to Dunrobin, Cyder-hall, and Balblair, and that neighbourhood; perhaps in all about 800 acres planted with Scotch fir: but new plantations are begun, and will be continued in every parish, on the Sutherland estate.

4. What is the extent of the Assynt estate, on the west coast of Sutherland?

A. By a plan of that estate, made by a Mr. Hume, about the time that property was acquired by the Sutherland family, the extent of Assynt appears to be as follows:

	Acres.
Arable land,	2193
Pasture in shealings,	1620
Natural woods, (now demolished),	2895
Mountains, moss, and hills,	79,705
Total,	86,413

It is evident, however, that the extent of arable land is exaggerated in that survey, because, from every account I could procure, and from my own observation, the arable land now in Assynt does not much exceed 1000 Scotch acres.

5. What is the extent of the farm of Dunrobin, in arable, pasture, woods, and plantations?

A. Dunrobin farm may contain about 1000 acres, arable, pasture, woods, and plantation; about 500 acres of which are arable.

6. What is the extent of the farms of Culmaly, Drumoy, and Kirkton, in Golspie parish; and of Crackag in Loth?

	Acres.
A. Culmaly contains of arable, and of meadow land to be brought to culture,	300
Moss, moor, and pasture,	600
Total,	900
Drumoy about 150 acres arable; moor and pasture uncertain, say 300	450
Kirkton, all arable,	120
Crackag, arable, 170 acres	
Meadow and pasture, 135	
	305

7. What is the extent of the farm of Skelbo?

A. Skelbo contains 280 acres arable, and 40 acres *burn* grass, or grass land on the sides of burns or streams.

8. What

8. What is the plan of rotation proposed to be adopted on the farm of Skelbo?

A. The rotation proposed is in five divisions:

1st year,	28	acres turnips.
	14	ditto potatoes.
	14	ditto beans.
	56	
2d year,	28	acres barley after turnips.
	28	ditto wheat after beans and potatoes.
	56	
3d year,	56	acres hay.
4th year,	56	ditto pasture.
5th year,	28	acres wheat in that lot which carried two year old grass after barley.
	28	ditto oats after the grass sown out with wheat.

9. What is the nature of the offices erected at Skelbo, and the advantages expected therefrom?

A. The offices are constructed on the best plan that could be devised, for securing the following advantages: 1. That all the cattle shall be comfortably accommodated in stables or sheds, and the greatest possible quantity of manure collected. 2. That the turnips and straw shall be consumed, partly by cattle reared, and partly by others bought in, which is supposed to be a good rule in most situations in the North, as, in this way, there can be no over stock, consequently no scarcity of provender, which all farmers ought to guard against, and which has hitherto been too little attended to in this county.

About 100 yards to the east of the square of offices, there is a corn or grist mill now building, wrought by the water which runs from the thrashing-machine; and in the

the other end of the same building, the kiln for drying the corn is erected. This kiln is 14 feet diameter, and the corn is dried upon plates of sheet iron, supported by cast-metal bars. It dries five bolls at a time; the expense of erecting which is computed at 30*l.*, including the iron plates and metal bars which support it; and the only fuel required, is the shelling seeds collected at the milling the grain, which is a considerable saving in the course of the season; and it has this additional advantage, that there is no risk from fire; whereas many accidents happen from kilns on the common construction taking fire, and destroying the whole premises. In short, when the square of offices, on Earl Gower's farm at Skelbo, is finished, it will be one of the completest in Scotland. (A Sketch of Earl Gower's Farm is annexed, *Plate* IV.)

10. What is supposed to be the best plan, in regard to cottage farms? The best plan of a cottage? The best extent of land to be attached to it, and the best rotation of crops?

11. How are the cottagers employed?

A. Where a tolerable quantity of arable land can be found in one place, it has been found to answer, and will be adopted on the Sutherland estate, to divide it into two fields, and allow two to four acres to each family, according to the quality of the land. One field in pasture grass, into which each settler is to put his cow; the other to be cropped as follows:

One-fourth turnip and potatoes;

One-fourth barley or oats, sown out with grass.

One-fourth red clover, with a little rye-grass.

One-fourth oats or wheat;

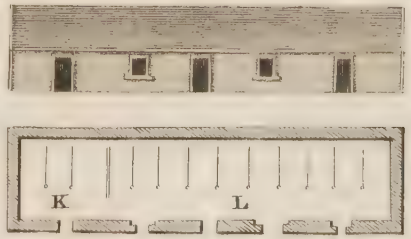
Which admits of a sufficiency of vegetables for the families, and their cows.

Sufficiency of straw, and some hay, which may be used for their cattle in the shape of hay-tea, or otherwise, when

SKETCH of EARL GOWERS FARM STEADING, SKELBO; COUNTY of SUTHERLAND.

A. *Steming House Corn Loft above.*
B. *Granary Corn Loft above.*
C. *Straw House.*
D. *Chaff House.*
E. *Clean Corn floor unthreshed Corn above.*
F. *Young Cattle Shades.*
G. *Pig's - Sty Poultry House above.*
H. *Dung Court sunk 2½ feet.*
I. *Pig's - Sty Poultry above.*
K. *Work Oxen Byr.*
L. *Work Horse Stable for 10 Horses.*

M. *Cow Byre for 24 Cows. Corn loft above.*
N. *Cart Shade Corn Loft above.*
O. *Calves Shade.*
P. *Calves Court sunk 2 feet for Dung.*
Q. *Necessary*
R. *Milk House Cheese room above.*
S. *Meal Cellar.*
T. *Servants Kitchen Maids room above.*
U. *Bread Presse.*
V. *Turnip Court.*



Neele sc. Strand.

when the turnips are done, and before the grass is ready.

When the land tires of this rotation, it is to be put into pasture, and the other pasture park thrown into this four-shift course.

Cottagers so situated, may find work in the county, or, having left their families in so comfortable a state, have it in their power to go south during the summer, and to return home in November.

12. What is allowed for trenching, &c.?

A. People settled on new ground, as cottagers, are allowed 10*l.* per Scotch acre for trenching and improving ground, equal to the maintenance of a cow, as above, and are charged five per cent. interest; others prefer continuing as small farmers on improvable moors. The option is given them, and in the latter case, 12, 15, to 25 acres are marked off. These people build their own houses, and such as are settled near Lord Gower's farm, get his horses to break a part of their new ground, and give work in return. During the first two years, no rent is exacted; and for five years more only a trifle. During this period they are bound down to have all the ground under the plough, the quantity taken having been left to themselves, and it is then to be valued by men mutually chosen, for 12 years more, who are to take all the circumstances of the case into consideration, although there can be no doubt that the tenants will be settled with on liberal terms, without the necessity of resorting to arbiters.

13. Are small farms of about 50 acres, an eligible plan to be adopted in the present state of Sutherland?

A. Some situations in Sutherland are adapted to 50 arable acre farms, and will pay better than if larger, especially with some grass ground attached to them: others may

may with more advantage be extended to 200 or 300 arable acres. No accurate rule can be given; much depends upon the facility of procuring extraneous manure. Farm offices adapted to each are agreed on.

14. What steps are taken for preserving the woods and plantations?

A. The natural woods are chiefly unfenced. The plantations are all substantially enclosed by stone dykes, or turf fences, faced outward with stone. For the wood of each district, and for each plantation, there is a keeper, who has a comfortable cottage, and a small pension, sufficient to render it of consequence to him, not to lose his place. Over these keepers, there is a general superintendant, recommended by the Duke of Atholl. He receives, from each sub-keeper, on the 24th of each month, a written report of the state of the wood under his charge. He renders these to the factor on the 30th of each month, along with a general report by himself. At the end of every three months, the factor takes these reports, and the general keeper with him, and visits each sub-keeper, and every wood on the estate. He compares the reports with what he sees; reports to the proprietor, and prosecutes every depredator immediately on his return.

15. What extent of additional plantation is in contemplation?

A. From 100 to 400 acres will be planted in each parish, according to soil and local situation.

16. How are the acorns protected from field mice?

A. The acorns are put into pits previously prepared by the spade, after having been steeped for a night or two in train oil, which deters field mice from touching them. If this precaution is omitted, three-fourths of what is sown may be devoured by these noxious vermin.

17. What

17. What instruments of husbandry are used? Who invented the plan for hummeling or dressing bear, as an addition to the Skelbo thrashing-machine? How does it answer? And what is the expense?

A. Instruments of husbandry, of the most approved construction, are now used on Dunrobin Mains, on the farm of Skelbo, and by several of the principal tenants on the Sutherland estate; and six thrashing-mills have been erected within the last eighteen months, driven by water, or horses, all with a four-horse power; a machine for hummeling bear, invented by Mr. George Mitchell, mill-wright at Bishop-mill, near Elgin, has been attached to the thrashing-machine at Skelbo, which completely answers the purpose. There is a drawing of it in the Farmer's Magazine, No. 47. The ingenious artist is well entitled to a handsome premium for the invention. He charges 10*l.* for the machine; but finds it troublesome in many cases to attach it to mills already built.

18. How does the scuffler or scarificator answer? What is the expense? And whence can it be had?

A. The scuffler answers extremely well, and is a great saving of labour; with it a pair of horses will do more work, and to much better effect, in cutting and destroying weeds, and reducing the surface of land, than thrice the number would, with a plough. The price is 6*l.* or guineas, complete. William Anderson, plough-wright at Elgin, makes them. He took the pattern from one brought by the Moray-shire Agricultural Society from England.

19. What is the best mode of enclosing for the county of Sutherland, and in particular, the best mode of putting feal and stones on the top of stone walls?

A. In most situations, stone fences are considered the best for Sutherland, as materials are so abundant; where turf

turf is preferred to stone for a coping, small round stones should be placed above the turf or feal, and grass will grow up from the feal among the small stones, which binds them together like a net-work: this kind of fence is durable and effectual.

No hedges have been tried, since the recent improvements commenced.

20. What plan has been tried for improving the sea-beach to the north of the Little Ferry?

A. The sea-beach between Golspie and the Little Ferry, contains about 300 acres, consisting of barren sand, and small round stones, in which *whin* and *broom* seeds were sown last April, (1811), in drills by the plough, 15 feet asunder. The seed has taken root, and being already above ground, has every chance to answer. Next season, the whole will be sown; and in a few years, this waste will not only beautify the country, but produce food for horses, and for young sheep. Whins, cut green and bruised, are known to be excellent winter provender for horses; and the blossom of broom, is considered to be a specific against the braxy for lambs and young sheep.

21. Does wheat answer? Either spring or winter? When is it sown? In what rotation? Is the culture likely to be extended? Is it proposed to erect a flour-mill?

A. Wheat has now been tried, and will to a certainty pay well, on the coast-side lands of Sutherland, where the climate is good, and the soil is in general dry. The season for sowing ought to be from the 20th September to the 20th October; the mode of culture, is mentioned in the rotation for the farm of Skelbo.

It is proposed to erect a flour-mill at Golspie, and an estimate of the expense is preparing.

22. What villages are in contemplation on the sea-coast,

coast, and in the interior; and what is considered to be the best plan for their erection?

A. Various villages are not only in contemplation, but will this season be commenced, namely, a maritime village at Loch-inver, in Assynt; and another at Mid-Garty, on the east coast, are immediately to be set out. In the interior, one at Lairg, and another at Pitentrail, in Strath-fleet.

23. When was the packet set on foot between Burgh-head and Sutherland? On what plan? How does it answer? How many cattle does it carry over?

A. The packet was set on foot in May 1809. The partners are, the Marchioness of Stafford, and the Proprietors of Burgh-head.

At Burgh-head, the London, Leith, and Aberdeen goods, for Tain and Sutherland, are landed, and shipped on board the packet for these places. Its tonnage is 45 tons burden; navigated by a master, two men, and a boy. It sails every Tuesday from Burgh-head, and returns on Friday; is often full of goods, with many passengers. The packet carries 15 large, or 20 small cattle; occasions a great intercourse, and is most useful to both sides of the Frith.

24. How are the sheep-farms doing on the Sutherland estate? How many Cheviot sheep are now on it? Are the sheep-farms to be extended? How are the people to be provided for?

A. Sheep-farms are paying well on the Sutherland estate. The number of Cheviots are now about 15,000. More ground will be laid off for the same mode of husbandry, without decreasing the population. Situations in various ways will be fixed on for the people. Fishing stations, in which mechanics will be settled; inland villages, with carding machines; moors and detached spots calcu-

calculated for the purpose, will be found; but the people must work. The industrious will be encouraged and protected, but the slothful must remove or starve, as man was not born to be idle, but to gain his bread by the sweat of his brow.

25. Who are employed in trying for coal; and what may be the expense?

A. Mr. Telford has seen, and given his opinion as to the best mode of searching for, and working, the coal at Brora. The work is carried on, (as formerly stated), under the direction of Mr. William Hughes, who has had much experience in such undertakings, and has been employed on the Caledonian Canal since its commencement. The expense cannot yet be ascertained.

26. What may be the expense of making Dunrobin pier? What the advantages? What other piers are in contemplation?

A. Dunrobin pier will cost 400*l.* The advantages are, that the packet, in place of being at sea during a night in winter, (as no vessel can take the Little Ferry when the tide turns to ebb), may run in one tide from Burgh-head to this pier, with her cargo and passengers; and that coal, timber, slate, and other commodities, wanted for Dunrobin and its vicinity, may be landed at it. On a moderate calculation, this will produce a yearly saving of 70*l.* in carriage, and detention at the Little Ferry, to the family at Dunrobin, besides other eventual benefits to the coasting trade and fishing on this coast.

A plan and estimate has been made up for an intended harbour in Torsdale Bay, where the Water of Naver discharges itself into the Northern Ocean. The walls of the pier to be about 600 feet long on each side, the height 19 feet, breadth 20 feet, and the parapets seven feet by eight feet high; the depth of the entrance 12 feet

at

at low water, and from nine feet to three feet within; to be denominated Port Naver; but there is no intention of having this scheme immediately executed.

27. When was the plan of willow plantations commenced? What sorts are planted? What the profit per acre?

A. Willow plantations were ordered by the Marquis of Stafford in September 1810. In the spring following, seven acres, after being trenched, manured, and enclosed, were planted with sets, picked out in East-Lothian, by a basket-maker of Edinburgh, who has taken a lease of the ground, not then worth 15*s.*, at 9*l.* per acre, of yearly rent. He is to settle in Sutherland, and expects to supply the several towns in the North with baskets: he is a perfect workman, and well recommended.

28. What roads are proposed through Sutherland, in addition to the post-road along the east coast to Caithness, now finished? Are the people convinced of the advantages to be derived from them?

A. Parliamentary assistance having now unfortunately ceased, in so far as regards any new undertakings, and the county assessments locked up with roads and bridges, until 1816, future improvements on roads must therefore be confined to the commutation money for statute labour, and private subscriptions; but every thing possible will be done, and roads to the intended villages will be particularly attended to.

29. What bridges are going forward? When will the iron-bridge at the Bonar be completed? What will be the expense of the intended mound bridge across the Little Ferry?

A. The iron-bridge erecting at the Bonar, will cost about 9000*l.*

The plan and estimate for the mound intended across

the Little Ferry, is not yet finally settled by the authority of the Parliamentary Commissioners, but it is supposed that the whole will be completed for about 6000*l.*

The bridge of Helmsdale is now completed, and is of the greatest benefit to travellers to and from Caithness, who were often detained at that rapid river, in the winter season, and obliged to swim their horses over it, at the risk of losing them.

This bridge consists of two fine arches, each 70 feet in the span, by 26 feet high. The contracted price was about 2300*l.*

30. What are the wages of farm servants? Has working by the piece been tried, and how has it answered?

A. The inhabitants of Sutherland have hitherto been very little accustomed to farm labour on an improved plan; and on the coast-side lands, it has been found more advantageous, to bring ploughmen from the southern counties, till the natives are instructed in ploughing, &c. The expense of course is equal, if not beyond, what is paid in the counties of Moray and Banff. Of piece-work, (except stone walls), the natives are equally ignorant; but trenching, &c. is carried on by spade-men from the south, and already the natives begin to learn, and will soon contract for work on similar terms, but not cheaper than in other places.

31. How is the dairy carried on?

A. No particular information on this subject can yet be given.

The breed of cows is principally the Argyle-shire; the Banff-shire cows having been brought to Dunrobin only this season (1811). The chief attention is paid to the rearing of young stock, and for that purpose, a calf is kept to each cow, and the milk, after giving the calves their allowance, is made into butter and cheese, in the usual manner.

The

The intended improvement of stock, by crossing the Banff-shire cows, with the Argyle-shire bulls at Dunrobin, is already noticed in the account of the farm of Skelbo; and experience alone can determine the result.

32. What is the rent of the salmon fishings? What is done for their preservation?

A. The rent of the salmon fishings of the waters of Naver, Helmsdale, and Brora, is at present 1650*l.* per ann. payable at Martinmas and the Whitsunday following, by equal portions.

Some irregularities in killing fish out of season have been discovered; and pointed instructions have been sent to punish the transgressors.

33. What quantity of kelp may be made on the Sutherland estate?

A. About 150 tons of kelp is annually made on the east coast, and in Assynt. It is doubtful if that quantity can be much increased.

34. Has any recent alteration taken place in regard to the property in the county?

A. Yes, the estate of Uppat has been purchased by Lord Stafford, and annexed to the lordship of Sutherland.

35. Are there any disputes regarding the patronages in the county?

A. Criech is disputed; but Assynt and Clyne are indisputably Lady Stafford's.

COAL.

Copy of the Journal kept while boring for Coal at the Water of Brora, County of Sutherland; (with a Section of the Coal Shaft, and the several Strata, Plate V.*)*

No.	Date.	*Description of the Strata.*	Depth of each Strata. Ft.	In.
1	1810. Oct. 23	Soft grey stone in this layer, containing iron-stone balls	63	—
2	31	Soft dark grey sandstone in thin layers, and stones as above	18	6
3	Nov. 1	Dark, very soft coal metal in thin layers, with partings of yellow pyrites, and water, which rise to the surface	2	—
4	15	Dark grey stone in thin layers, with soft partings	6	10
5	19	Dark hard stone with strong sulphureous smell, perhaps alum shale	1	8
6	22	Soft sandy stone, rather lighter coloured than the above	9	7
7	29	Lightish-coloured sandstone, containing marine putrefactions	14	10½
8		Very hard ironstone	—	5½
9	30	Hard grey clunch, a common coal-measure	2	9
10	Dec. 13	Light coloured metal stone, rather soft in boring	2	6
11	18	Lightish-coloured clayish strata, soft in boring, and containing a considerable portion of sparry matter and marine putrefaction	2	9
12	20	Ditto still darker, containing more of the white spar, sulphureous, effervesces briskly, but does not contain any slack after burning	4	—
13	25	Ditto, light coloured	11	10
14	1811. Jan. 17	Ditto, still lighter coloured than the above	11	2
15	23	Ditto, much darker, containing white powdery matter	11	8
16	28	Dark clunch, a clayish strata	7	11
17	Feb. 6	Ditto ditto, ... ditto	4	10
18	13	Very dark coal shale, rather soft in boring	2	7
19	20	Ditto ditto	5	11
20	26	Ash-coloured metal stone	12	6
21	28	Very hard brown stone, perhaps ironstone	—	5
22	Mar. 2	Ash-coloured clunch and bind	5	4
23	8	Dark bituminous shale, with soft partings	7	11
24		Very hard close-textured sandstone	—	8
25	April 1	Sandstone with blue streaks, soft in boring	12	9
26	17	Very hard limestone mixed with freestone	2	3
27	18	Grey shevery sandstone, rather soft	—	6
28	20	Sandstone, mixed with limestone, very hard in boring	—	7

No.

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2dot. 11¼ In.

No.	Date.	*Description of the Strata.*	Depth of each Strata. Ft.	In.
29	1811. 23	Ash-coloured metal stone, rather soft	2	—
30	May 14	Hard caking coal	3	3
31	16	Black clunch, pavement of the coal	2	—
32	18	Hard splent coal	1	4
33		Black-burning shale, like Kannel coal	6	7
34		Very hard stone, perhaps ironstone	1	2
35	29	Black shale	2	—
36		Very hard stone	—	2½
37	June 1	Soft black shale, speckled with white powdery matter	—	2
38	5	Hard black-burning shale, came up in the augur in large pieces, very promising, and not yet cut through	4	2
		Total depth bored	250	11½

Fairs established.

In order to remedy the difficulties formerly complained of, regarding the sale of black cattle in this county, (see page 115 of the Report in 1807), the following fairs were established in 1811.

1. A fair at Duillish, in the parish of Kildonan, a place on the cattle road from Caithness and Strath-naver, southward, held on the 14th August annually; and one at Pitentrail, in the parish of Rogart, in Strath-fleet, on the line of said cattle road southward, and near its junction with the roads from the west and north-west coast; held on the 16th August. These markets connect with the great Kyle market, held on the 19th, 20th, and 21st August, and the great Falkirk tryst on the second Tuesday in September.

2. A fair or tryst at Duillish on the 12th of September, and one at Pitentrail on the 16th, to connect with that of the Kyle on the 18th of September, and the Falkirk tryst on the second Tuesday in October.

3. A market or tryst at Knock-glass, in the parish of Clyne, on the said Caithness road, on the 9th of October; and one at Pitentrail on the 11th, to connect with the Beauly tryst on the 18th of October annually.

Drovers from the south of Scotland, may expect to find great numbers of Highland cattle at these newly established fairs or trysts, which will suit their views for the southern markets, and will prove of advantage to the Sutherland and Caithness farmers or cattle dealers, in getting fair prices, and ready money, for their cattle.

Improvements at Culmaly.

In page 126 of this Report in 1807, it is remarked, that much might be done by draining, in the Valley from Golspie to Kinauld, &c. That improvement has now, (in 1811), been successfully prosecuted on the farm of Culmaly, in that valley. Mr. Sellar, (a Gentleman from Moray-shire, who has taken the lease of that farm), has drained a considerable extent of the marshy ground within the lines of his possession, in some parts to the depths of 11 feet, through a stratum of sand, incumbent on blackish mould, and peat moss on a clay bottom. He prepared 4½ Scotch acres of the drained marsh in spring 1810, and sowed it with 4½ bolls of potatoe oats, and the produce amounted to 51 bolls. He has 18 acres of the same ground under an oat crop, this year, (1811), 12 acres of which he considers equal to the last year's crop; the rest was not sufficiently harrowed, but he believes it will yield from six to seven returns.

Mr. Sellar has erected a handsome dwelling house, and a commodious square of office houses, near the burn of Culmaly, where there is a grist mill, and the command

mand of water for his thrashing-machine, from whence he has made a canal to an arm of the sea, west from the Little Ferry, about a mile distant. This canal carries off the water from the mills, and from the drains in the marsh ground: it is about $3\frac{1}{2}$ feet deep, and upon it he has a boat which carries 8 tons; this boat is anchored on the sands of Little Ferry, or Loch-fleet, when the tide is in; at low water the boat is filled with the shelly sand, which is abundant in that loch or arm of the sea; and when the tide returns, the boat is afloat and warped to the canal, and by it brought up to very near the farm offices, where the shells, &c. are conveyed to the cattle-sheds and square, and there mixed with peat-earth, sea-weed, and cattle dung. By these means, from the 1st of July to the 30th August, he collected of compost manure, what served 18 acres of fallow, which he was to sow with wheat in September. He had 30 acres in fallow, prepared for wheat this season, with every prospect of success, as the wheat sown in 1810 on several farms on that coast-side, had every appearance of a good crop in August 1811.

This intelligent farmer had four bolls of wheat sown in October 1810, and the produce was thrashed in November 1811, which yielded 37 bolls of wheat of good quality, and $2\frac{1}{4}$ bolls of damaged corn, on the top of the stack, which is very near 10 bolls per acre. He had 11 acres of wheat appearing above ground, on the 20th November, 1811, and was then sowing wheat, and expected, betwixt his winter and spring sowing, to have 30 acres under wheat in summer 1812. He finds one essential good quality in the land of the Vale of Golspie, or Strath-fleet, *i. e.* that it will produce turnips, grass, and wheat unlimed. The mode of improving the marshy ground, so productive of oats, is this: having made a catch-water

drain betwixt it and the hill, there were cuts or cross-drains made from it to a main drain; the ground was ploughed in February thereafter, and sown in April; and the produce was as already stated. He is to fallow it in summer 1812, when it will be manured and sown with wheat.

The other gentlemen who have recently taken farms in that valley, are draining their marshy ground, and improving the old arable land within the lines of their respective farms, after having erected commodious houses and squares of offices. Some of them receive a stipulated sum in advance from the proprietor, for the purpose of building, for which they pay five per cent. interest; others are to be allowed meliorations at the expiration of their lease, to a certain extent.

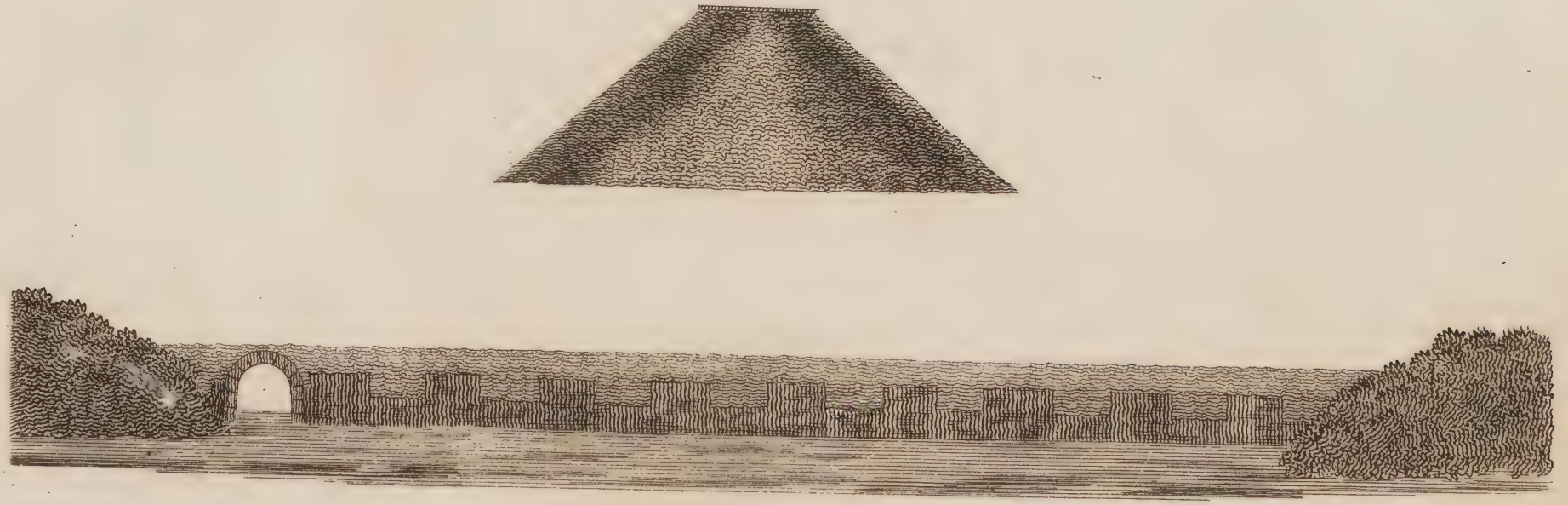
I annex a copy of the estimate made of the probable expense of the Mound across the Little Ferry, which has been submitted to the consideration and approval of the Government Commissioners for roads and bridges, by the Right Hon. Earl Gower, who has offered to lodge the moiety thereof, which falls on the county, as soon as the plan and estimate are agreed to.

The probable estimate made up by an engineer in the Marchioness of Stafford's employ, is thus:

To large stones and chingle for the front 15,000 cubic yards at 1*s.* 6*d.*	£1125
To large stones to be used, which will require blasting, 5000 ditto, at 5*s.*	1250
To earth to be brought on rail-ways, 30,000 ditto, at 9*d.*	1125
To sand, &c. from the beach on each side of the mound, 10,000 ditto, at 6*d.*	250
Carry forward, ...	£3750

Brought

Plan of the Proposed Mound across the Little Ferry in Sutherland.



Brought forward, ...	£3750
To one bridge, 40 feet span, with sluices, ...	1500
To 2000 yards of timber railing, including laying, &c.	250
To 15 waggons, ...	120
To planks and trustles, 25*l.*; 40 barrows, 34*l.*; incidents, 321*l.*;	380
Total, ...	£6000

The length of the mound and bridge to be 953 yards; contents 60,473 cubic yards, the average depth, twelve feet four inches, allowing a rise of four feet above the highest tide. (*Plate* VI.)

When this mound, with its bridge and sluices, are finished, several hundred acres of a rich clay soil may be recovered from that loch, to the west of the mound, now covered by every tide, by cutting a straight channel from Morvich to the bridge of the said mound; because the river Fleet is but a small river beyond Balintraid, the highest point to which the tide flows.

Mussle Bank.

A small distance to the east of the intended line of this mound, in the Little Ferry, or Loch-fleet, there is a mussle bank, or *scalp*, of considerable value, though little attended to until within the two last years. The Morayshire fishermen purchase the mussles at the rate of one guinea the boat's cargo; with this bait, they fish on the Sutherland coast of the Murray Frith, and catch abundance of cod, haddock, &c., which they carry to the Inverness market, &c. As soon as the intended fishing villages are established on the south-east coast of Sutherland,

land, it is to be hoped that the natives of Sutherland, will imitate the industrious habits of the Murray fishers, and consume their mussles as bait for fishing on their own shores, which will add much to their individual comfort, and to the resources of the community to which they belong.

Shoals of herrings have been seen off the Sutherland coast, opposite Helmsdale, for the last two or three years; but no attempt has hitherto been made to fish for them there.

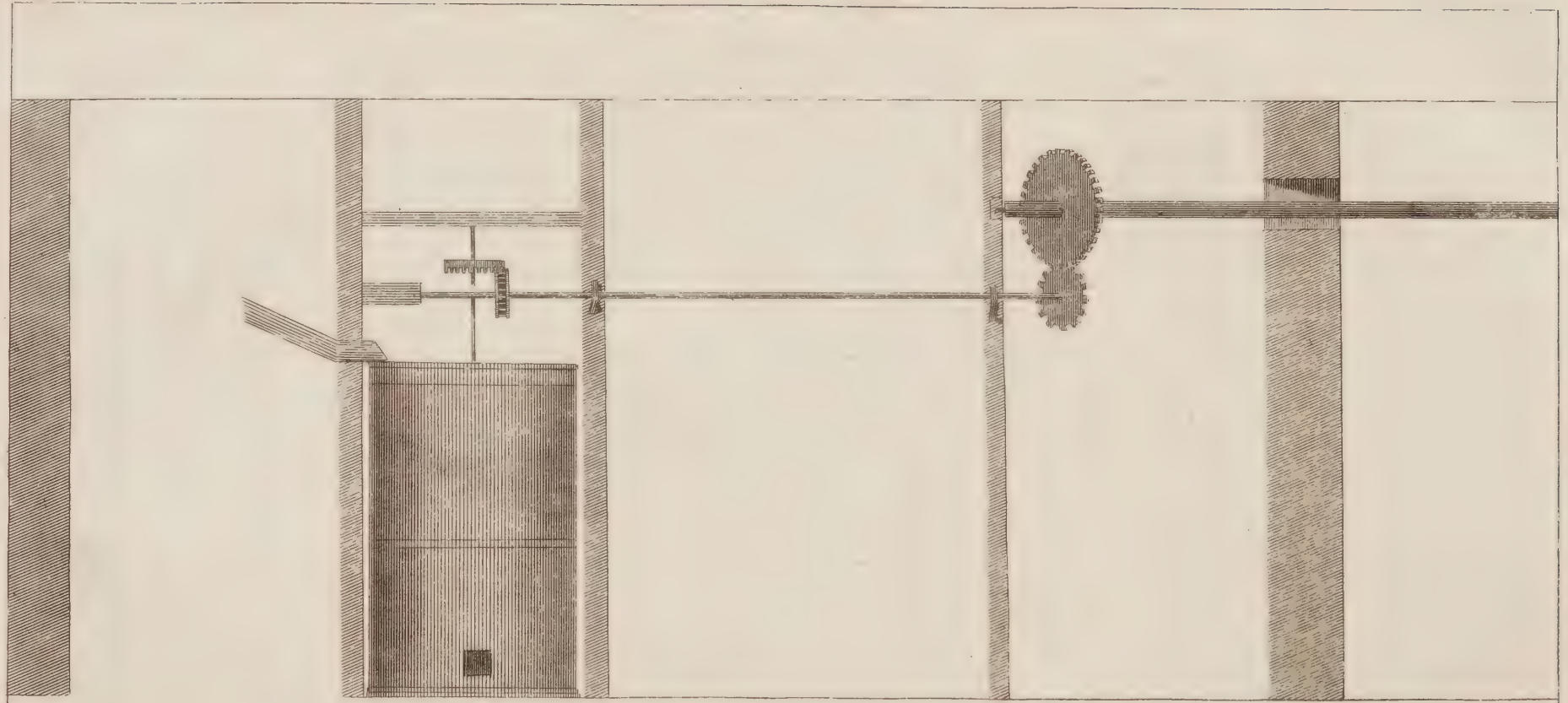
Feeding Horses, Cattle, &c.

The Reporter having inquired of one of the gentlemen who have lately taken farms on the coast-side of Sutherland, if they used chaff-cutters, was answered, "We have every implement of husbandry common in Scotland: we have scarifiers and horse-hoes for our land, good Scotch carts, with cast-metal naves, draining tools, &c.; but instead of cutting our chaff, we infuse it in a steaming-machine, which gives us wort for our young store, and divides the chaff more minutely than any edge instrument can do."

The same steam-machines prepare potatoes for their horses, one of which is erecting on the Skelbo farm; it has six steaming tubs. It is set up in a small building near the square of offices.

Hummeling Machine.

As the hummeling-machine attached to the Skelbo thrashing-machine, is the first of the kind invented in Britain, that has proved successful, it is proposed to give an



A Machine for dressing (hummelling) Barley or Bean?

an imperfect sketch of it, the Reporter not being able to take an exact measurement when he visited that farm.

It consists of a cylinder made of thick staves of fir, well bound with iron hoops, and stands perpendicular in a wooden frame, at the side of the mill-fanner furthest from the spur-wheel of the thrashing-machine.

Explanatory Reference to the Sketch of the Hummeling-Machine. (Plate VII.)

A, the cylinder, three feet high; and 19 inches diameter within.

B, the upright axle, of one inch thick, of stanchial iron, having four wings of cast-metal, each nine inches long, one inch broad, and a quarter of an inch thick, fixed at right angles in the axle, at a; the same at b, and at c: the ends of these wings are within half an inch of the side of the cylinder.

C, an iron axle of about one inch in the side, having the pinions 2, and 3, fixed on the ends of it. No. 3, plays in the spur-wheel of the thrashing-machine D, and No. 2, in the pinion 1, on the upright axle in the cylinder.

E, a feeding-board or trough, projecting out from the frame of the mill, and into it a person pours the rough bear as it comes from the mill, by which it falls into the cylinder to be hummeled.

4, a square valve near the bottom of the cylinder A, through which the hummeled bear runs out, by drawing up a shuttle-board which keeps it shut; it must be opened nearly every minute, to prevent the grain being over done.

5, a wedge in the frame, which supports the horizontal axle, and by drawing out this wedge, the pinion of the axle is disengaged from the spur-wheel, and the hummeling-machine stops, and *vice versa.*

N. B. The above three pinions having the same number

ber of teeth, with the pinion of the drum, therefore the wings of the upright axle in the cylinder A, moves with the same velocity as the drum of the thrashing-machine does.

If the awns or beard of the bear, is not very tough or damp, the cylinder will hummel as much as the mill will thrash, in the same time; but if tough, the overplus may be done by disengaging the drum pinion from the spur-wheel, and yoking one horse in the machine; or a smaller quantity of water will hummel the remainder when they are done thrashing. The only risk is, that by leaving the valve too long unopened, a part of the grain may be overdone, or the skin taken off.

The inventor of this hummeling-machine is entitled to a premium for his successful invention; yet it is probable that a considerable improvement may be made upon it, by placing the cylinder A, horizontally above the fanner of the thrashing-machine, so that the pinion 1, of the axle B, may act in contact with the spur-wheel. This would cause less friction, and render the axle C, with its pinions, unnecessary. An iron thin bar or hoop may be fixed on the ends, or some other part, of the three sets of wings, so as to act more effectually, even than the wings now do while their axle is vertical; and the grain to be let out of the cylinder, by a longitudinal narrow board, to be occasionally drawn out of the lower side of the cylinder; and lastly, this machine may be so constructed as to be removed from the thrashing-mill when it is not required for hummeling bear or barley.

These suggestions have just occurred to the Reporter, on considering this useful invention, and he trusts, that it will be put in practice by some mechanic with the desired effect, although he by no means inserts them from any wish to depreciate the merits of the original inventor, who, he hopes, will be well rewarded for his ingenuity.

Statis-

Statistical Table of the County of Sutherland, from the Returns made to Government, July, 1811, in terms of Act 51 Geo. III. Cap. 6, by Parishes, viz.

Names of Parishes.	Question First.		Question Second and Third.		Question Fourth, Occupations.			Question Fifth, including Persons of whatever Age.		
	Inhabited Houses.	Occupied by how many Families.	Houses now building.	Other Houses uninhabited.	Families chiefly employed in Agriculture.	Families chiefly employed in Trade and Manufactures.	All other Families not included in the two preceding.	Males.	Females.	Total of Persons.
1. Assynt	514	514	—	—	426	14	74	1119	1360	2479
2. Clyne	354	362	1	—	293	61	8	721	918	1629
3. Creech	419	419	4	5	328	27	64	879	1090	1969
4. Dornoch town & parish	603	603	12	5	553	35	15	1219	1462	2681
5. Durness	223	230	—	3	179	18	33	508	647	1155
6. Edderachylis	218	218	—	—	161	20	37	520	627	1147
7. Farr	444	449	—	9	373	25	51	1082	1326	2408
8. Golspie	319	322	5	1	115	93	114	636	755	1391
9. Kildonan	292	292	—	9	241	37	14	693	881	1574
10. Lairg	243	243	—	—	136	20	87	504	850	1354
11. Loth	284	284	1	—	208	28	48	598	732	1330
12. Rogart	432	432	—	—	315	22	95	987	1161	2148
13. Tongue	290	297	3	8	240	11	38	640	853	1493
14. The Sutherland part of Reay* par. or Strathalladale	179	179	—	2	150	10	19	382	479	861
Total in 1811	4814	4844	26	42	3718	421	697	10,488	13,141	23,629
Do. in 1801, Govern. return	4315	4384	..	9	16,163	670	4234	10,425	12,692	23,117

Increase since 1801 953
Decrease ditto 441

Balance is the increase of population 512

* The other part of the parish of Reay is included in Caithness-shire.

The Reporter has applied again to the Parochial Schoolmasters of the county, for tables of marriages and births, during the two periods, ending in 1800 and in 1810; but he has not yet been favoured with any returns from them.

CONCLUSION.

WHEN these extensive plans of forming villages, both maritime and inland, establishing manufactures, and encouraging the herring and cod fishery, &c. on the sea-coast of the extensive estate, or lordship of Sutherland, shall be executed, it will tend most effectually to increase the number, as well as the comfort and happiness of the population of this county; and whilst it will put an end to emigration, sheep-farming may be gradually extended in the interior of the county: thus increasing its wealth and resources, in a pecuniary and political point of view. An example will thus be given to other proprietors in the Highlands of Scotland, that it is possible to extend sheep-farming, and to increase, instead of diminishing the population and resources of a district; a measure not hitherto sufficiently attended to, with the exception of the estate of Langwell, in the county of Caithness, where the President of the Board of Agriculture proved, by an experiment on a great scale, that the Cheviot breed of sheep, would thrive on the bleak mountains of the most northern county of Scotland; and that a large proportion of the old inhabitants might be retained under the new system.

APPENDIX.

No. I.

DESCRIPTION OF SUTHERLAND, IN 1632;

AND AN ACCOUNT OF ITS ORIGINAL INHABITANTS.

(Extracted from Sir Robert Gordon's History.)

SUTHERLAND is divided from Ross-shire on the south, by the Kyle and river of Portnaculter, or Oickel, which falls into the Murray Frith between the town of Dornoch in Sutherland, and the town of Tain in Ross-shire. The tide flows up the river Oickel 25 miles to Rose-hall, where the river Chaslie joins it; thence the river Oickel bounds the county, to its source at Ken-loch-ailsh; then by the height of Glenmuich to Auldena-kealagach by Loch-burlan, and a rivulet running from it due west, dividing Coigach from Assynt, till it joins the West Sea at Loch-kerkag.

Sutherland is divided from Caithness on the north-east by the *Mond*, or mountains of the Ord, commonly called the Ord of Caithness; and the line of march runs from the Murray Frith on the south, to the summit of the hill called Knock Corrie Phuil, and thence by the summit of the range of hills to the Northern Ocean, by Druim Chalasten and the Myre of Chalasten, which divides Strath-naver from Caithness; and Strath-naver, Durness, Edderachylis, and Assynt, (a part of Sutherland), are bounded by the Ocean on the north and west to Loch-kerkag, as above.

Sutherland is bounded on the south, and south-east, by the Murray Frith, an arm of the German Ocean.

EXTENT

EXTENT OF THE COUNTY.

What is called the south-east, or coast-side of Sutherland, from the Meikle Ferry, or Portnaculter, to the Ord of Caithness, is 32 miles and a half. From Dornoch Point, or the Gizzing Briggs of Portnaculter, by the river Oickel, and over the mountains to Loch-kerkag on the north-west, is 52 miles and a half; and from Loch-kerkag to Cape Wrath, in Durness, being the north-west promontory of the county, is 42 miles and a half; from Cape Wrath due east to the line of march of Druim Chalasten, where Strath-naver bounds with Caithness, along the North Sea, is 50 miles; and finally, the distance from the Ord to the junction of Druim Chalasten, at the North Sea, is 37 miles and a half, being nearly the continuance of the line from Portnaculter to the Ord.

Sutherland was anciently divided from Strath-naver by a range of mountains from east to west, viz. by the hills of Halladale, Millaninlarg Kenloch, Strathie, Keavagan, Loyni Keil, Loyn Farfiend, Derloyn, Lead Stron-ne-Garranach, equally divided by Corrie-ne-Fèan, Bein-Chearral, Bein-hie, Corrie Chrutter, Auldnabanagh, Knockan Challagh, Auldmillan Coil, and Droit Bein-Leoyd, on descending to the West Sea. Sutherland was separated from Durness by the *Diri More*, or the Great Forest; and divided from Edderachylis by the *Diri-Menach*, to the end of Kyle's-Cow, where Assynt begins. Sutherland was divided from Assynt by the Gorm Loch, Fen Loch, and Loch Markal, towards Tom-na-toin, by the Glas-bhein, lying north-west from the Bein-mhor, in Assynt, and by Strath-nardal, falling to Kenloch-ailsh, the source of the Oickel, as before noticed.

The

The ancient name of Sutherland was *Cattey*, which included all the land lying north of Portnaculter, or Oickel, to the North Sea, at Duncansbay-head; and that part of it lying north-east from the Ord mountains, was afterwards called *Catteyness*, now Caithness.

The most ancient and authentic accounts of its original inhabitants are thus recorded.

" In the reign of Corbert the First, 19th King of Scotland, in the year of the world 4025, the 63d year of Christ, 373 years after Fergus the First had obtained the Crown of Scotland, Nero being Emperor of Rome, there came out of Germany, a certain people called *Murrays*, with their Captine, Roderick, expelled out of their native country; and being inhibited to land in France, they arrived in the river of Forth, between Lothian and Fiffe. These Murrays were sworn enemies to the Romans, and rejoicing to find any occasion to be revenged on them, they did entreat the King of Scots and Picts (being then ready to feight against the Romans) that they might pass formest in the battle; and if the Romans chanced to be vanquished, the King of Scots should give wives to the Murrays, that so they might increase in one blood with his people; which conditions being granted, the confederate Kings, the Queen of Britain, Voada, sister to King Corbert, together with the Murrays, fought presently a cruel battle against the Romans, where the Romans were overcome, and their Procurator, Catus Deciannus, wounded.

" Then came Paulinus Suetonius, the Roman general, hastily out of France into Britain, and fought against them.

" After a long and terrible battle, the Albions were vanquished, the Murrays were almost all slain, with their

Captine, Roderick. Voada killed herself, to escape injury from the Romans.

" King Corbert, in recompense of their good service, did give to the Murrays who escaped out of the battle, a great part of the country of *Vararis;* where they seated themselves, and married Scots wives. This *Vararis* did contain all the region lying benorth the river Spey, even to the great Ocean; and that part of it which lyeth between Spey and Ness, was then, from this people, called Murrays' Land, and doth retain this name into this day (1630). Gordonues Lesmoreus, in his Chronologie, differeth from Flavius Josephus, Charion, and Melancthon, in computation of years, for he maketh the 63d year of Christ, wherein this happened, to be the 4064th year of the world.

" Now the Murrays came to Sutherland in the reign of Corbert the Second, surnamed Gald, (the famous King of Scotland, whom Tacitus calleth Galgacus), son to Corbert the First. The year of Christ 91, Domitian being Emperor of Rome, there arrived in the river of Tay, a great number of Germans, named *Catii*, or *Usipii*, a valiant people of mighty bodies, who were banished out of their native land for killing of a Roman general, and his legion; Domitian having before triumphed over their nation. King Corbert Gald received them very favourably, as his father had done those who had formerly come into the country, and did appoint them certain lands to inhabit, benorth of the Murrays, in the remotest limits of *Vararis*, which lay almost void of inhabitants, and was then by them called *Cattey*. In progress of time these Cattean Germans were called *Murrays*, for they were of one blood with the Murrays who came into Scotland with Roderick: they assisted King Corbert in all his valorous

valorous enterprises, as the other Murrays had done his father, and were in good reputation with him and with all his people.

" At their first arrival in the river *Unes*, now called the Little Ferry, near Dunrobin, a commodious safe harbour, their Captain went on shore to recreate himself, and to spy the land, where he was suddenly invaded by a body of monstrous large *wild Cats*, that infested the country. The fight between them was fierce, and continued long, yet in the end, (being grievously wounded in several parts of his body), he killed them all. From thence the Thanes, or Earls of Sutherland, even unto this day, carry in their crest or badge, above their arms, a Cat sitting, with one foot up, ready to pounce upon his prey. Some do think, that from this dangerous adventure, this country was first called *Cattey*, for Catt, in the Gaelic language, signifies a Cat; but I do rather incline to their opinion, that as Murrays' Land was called from the Murrays, even so this country was called *Cattey*, from this people, who then arrived from Catii; for in ancient times, countries took their names from their inhabitants; and as the people changed, so also were the names of provinces renewed: an usual thing in those days, and in the beginning of the reigns of Scotland.

" But whether from this people, or from the above adventure, certain it is, that this country was then called *Cattey*, and the inhabitants *Cattigh*. Claudius Ptolemæus, (who lived in the days of Antoninus Pius, about the year of Christ 155), in his geographical description of Britain, calleth the people of Cattey, *Cantæ*.

" These *Cattii* and *Usipii* were a mighty people in Germany, against whom the Emperor Domitian waged a sharp, doubtful, and cruel war, and triumphed over them. Of these Catteans, Tacitus de Moribus Germa-

nicum thus writeth:—'Beyond these the Cattii begin from the Hyranean forests, but have not so wide and marshy a country as the other cities, in which Germany doth open and spread itself; for the hills are one by another, and continue a certain space, and then by little and little wax thinner, and the Hyranean forest doth contain the *Cattii*, and is the bounds of their territory: they are a people hardened to labour, well sett, stern countenanced, and of great courage. As Germans go, they are sensible, wise men, and considerate; they prefer choice men, hearken to their leaders, know their ranks, know where advantages are, bridle their heat, dispose of the day to their benefit; intrench in the night, hold fortune among things doubtful, and esteem of valour as a certainty; and which is most rare, and understood only by discipline, they repose more assurance in their leader than in the army.

"'All their strength consists in footmen, whom, besides their arms, they load with iron tools and provisions. Thou may see others go to skirmishes, but when the Cattii march to war, they seldom skirmish or fight at adventure: their horsemen are of this property, that they quickly win the victory or yield; suddenness is near to fear, lingering draweth nearer constancy; and that which is never used among other people of Germany, through their boldness and hardiness, it is grown to a common consent among the Catteans, that is, where they come to ripe years, they suffer their hair and beard to grow at length, and never put off that vowed ornament of the face, and as it were a bond of virtue, untill they have killed an enemy: upon blood and spoil they uncover their forehead, and say they have paid back the price of their birth, and think themselves worthy of their country and parents. The cowardly and unwarlike remain in their

ill

ill-favouredness. Besides this, every man, as he is most valiant, weareth an iron ring (an ignominious thing to that people) as it were a bond, until they rid themselves of it by killing an enemy. This quality pleaseth many of the Catteans; and as they grow grey, respected of their own people and enemies; these begin every battle; these make always the first rank, strange to behold! &c.

" ' Next to the Cattii, the Usipii and Tincteri doth inhabit the Rhine, running into a certain channel, and which may suffice for a bond, &c.' " Thus far Tacitus.

" From the Catii in Germany Crantius derives the Saxons, who being called into England by the Britons, for their defence against the Scots and Picts, expelled the Britons, and made themselves absolute lords of that kingdom."

" Mercator, in his Atlas, and Charion, in his Chronology, with divers others, think these Catii in Germany to be that people, who are at this day called Hessi, under the dominions of the Landgrave of Hesse, in which place Mercator citeth the opinion of the learned Junius, who, as may be translated, writteth in this manner of the etymology of the Catteans:

" The Catti," says he, " whom our age and the former have called Hessi, do seem to have taken a common name with the Cats, from the fierceness by which they did insult over their enemies; for who is he that doth not know the fierceness and violence of this beast, (although it be tame and domestic), in seeking to pull him by the throat, who by bringing it to any distress, would offer it any injury? Or from the crafty fetches and wilds, whereby they were wont to fly upon their enemies, as the Cats do loup upon the backs of the mice; for such doth appear to be the spirit of that fierce and warlike nation of the Catteans. To this may be added,

that among the people of Heusden, the word Hessi is used for a Cat; and whenever they would express that domestic beast, they call it Hessie. Moreover, men surmounting to virtue might have hitherto been named by the ancients by the word Cattii. Surely you cannot learn the virtue and excellence of that nation better from any than Tacitus, who doth attribute unto them more honour, and manner of military discipline, than to all the rest of the Germans, &c.? And therefore, the nature of that people was expressed by a most fit name, whether you have respect to their fierceness, or violent assaulting, or to their excellency." Thus far Mercator out of Junius.

"However these Cattii of Germany, for their fierceness or valour, have their denomination from the Cats, doubtless their offspring, the Cattean Mureys, who did inhabit Sutherland, did call the country Cattey, and the inhabitants *Cattich*, either from the people themselves, or from the killing of the Cats, on their arrival there; and even unto this day the county of Sutherland is called *Cattey*, the inhabitants *Cattich*, and the Earl of Sutherland *Morrer-Chatt*, in the Gaelic language; which language the inhabitants of the county still use*."

* See Sir Robert Gordon's History of Sutherland, written an. 1632; and recently published by Constable and Co. of Edinburgh.

Neele sc. Strand

EAST END of DORNOCH CATHEDRAL.

Erected by St. Bar Bishop of Caithness in the 11th Century, & enlarged by Gilbert Murray Bishop of Caithness in 1284, Burnt by John Sinclair Master of Caithness in 1570, and repaired by Sir Robert Gordon Tutor of Sutherland Anno 1630. The West End was since repaired, and is now the Parish Church, Anno 1808.

No. II.

ANTIQUITIES OF SUTHERLAND.

In the year 1630-1632, Sir Robert Gordon, uncle to John Earl of Sutherland, and afterwards tutor to that noble family, wrote the History of Sutherland; in which he narrated the ancient conflicts of the Northern Clans. He states, that in the 11th century, St. Bar, Bishop of Caithness, built a church at Dornoch, called St. Bar's Church, which was the Bishop's Cathedral (see *Plate* VIII.), that the Bishop's Castle, and the residence of the Canons, were built there, and that all the glass required for the church, was made by St. Gilbert, at Sidry, two miles west from the town of Dornoch. Adjoining this church, Sir Patrick Murray, between the years 1270 and 1280, established a monastery of Trinity Friars; and it was about the same time, or soon after, that Gilbert Murray, Bishop of Caithness, caused the church to be enlarged and embellished in the magnificent manner the present ruins indicate.

Tradition says, that about the same time, a brother of Bishop Murray's fell at the head of a chosen band of men, when repelling a body of Norwegians or Danes, who had landed at Ferry Unes, near Embo, to pillage the country; and that a monument to his memory was placed near the font, in the east aisle of the cathedral. In that place is still lying in the earth a mutilated, but well-carved, figure of a warrior, in *alto-relièvo* (see near A on the annexed view), which formed the lid of a stone coffin. This was the most honourable mode of sepulture at that time, and is therefore no doubt the monument of the warrior alluded to. Many stones, with curious carv-

ings on them, are scattered in the ruins of this cathedral, of which some specimens appear in the annexed sketch of it.

Where the battle was fought at Embo, there is a stone, with the figure of a cross, erect in the ground, called *Crois en Righ* (the king's cross), where, by the same tradition, a king or chief of the Danes was killed and buried.

In 1570, John Sinclair, Master of Caithness, and Jye Mackay, of Strathnaver, came with a banditti to Sutherland, plundered the town of Dornoch, and burnt the church, which church was repaired by the said Sir Robert Gordon, who had interest enough to obtain the erection of Dornoch into a Royal Burgh.

In those days four fairs were held at Dornoch annually, viz. St. Gilbert's fair, the 1st of April; St. Margaret's, 20th July; St. Bernard's, 20th August; and St. Bar's, 10th October. To these fairs, a great concourse of people convened for traffic, from all parts of the kingdom. The other fairs are, St. Andrew's at Golspie, St. Tewgnach's at Criech, St. Callin's at Rogart, St. Maria at Lairg, St. Alayn's at Clyne, St. Cardin's at Kilmaly and at Loth, St. Donan's at Kildonan, Our Lady's at Brora. Brora was erected a Burgh, by John Earl of Sutherland, in 1620.

Chapels in Sutherland in 1630.—At East Garty, one built by Magdalen Baillie, Countess of Sutherland; one at Naviedale, dedicated to St. Ninian, where in old times there was a Sanctuary; one at Wester Helmsdale, called St. John's Chapel; at Kinauld and Golspie, dedicated to St. Andrew; and one at Kilcolmkill, dedicated to St. Columbo.

Sir Robert describes the forests of Sutherland in 1630, thus:

thus: "There are several forests in Sutherland, beside, Scottany in Strath Brora, Tuary in Strath Ulli, Glen Shin, on the river Shin, and divers other particular chases; and hunting places full of woods and rid deer, to wit, the forest of Diri Chat, in the parish of Kildonan, wherein are contained the hills called Bein-armins Diri Menach, in Lairg parish, containing Cori Kenloch, and Diri More (Great Forest); also in Lairg parish, Beinhie, &c. All these forests are profitable for finding beastials, and delictable for hunting; they are full of rid deer and roes, wolfs, foxes, wild-cats, brocks, squirrels, whitrets, weasels, otters, martins, hares, and fumerts. In these forests, and in all the province, there is a great store of partridges, plovers, caper-caills, black-cock, moor-fowl, heath-hen, tarmakins, swans, benters, turtle-doves, stears or sterling, lair fligh, or knag, (which is a bird like a parrot, that makes her nest with her bill in the oak-tree), duck, drake, widgeon, teal, wild-goose, rein-goose, roe, whicaps, woodcock, lark, sparrows, snipes, black-birds or oisles, mavises or thrush, and all other wild-fowl and birds, to be had in any other part of the kingdom. In the Diri More, there is a mountain called Arkel; all the deer that are bred therein, have forked tails three inches long, whereby they are easily known from any other deer.

"There were excellent pearls found in Loch Shin, that were sent to the King at London.

"*Mines.*—In 1620 Sir Thomas Menzies, provost of Aberdeen, found a silver mine in Sutherland; got it assayed in London, and found it very good; but on his return he died, and the mine lay undiscovered, as he did not point it out to others before he went to London.

"There

"There is iron ore in Sutherland, of which the inhabitants made iron."—*Sir Robert Gordon's MSS.*

COLE'S CASTLE.

Upon a rock in the black water of Strath-beg, about a mile and a half north from the junction of that river with the water of Brora, stand the ruins of *Cole's Castle*, a view of which is annexed (see *Plate* IX.) It is a circular building, 54 yards in circumference round the base on the outside, or 18 diameter; and 27 yards circumference, nine yards diameter within, by which it will appear that the walls are $4\frac{1}{2}$ yards, or $13\frac{1}{2}$ feet thick in the base; built of large stones, well connected, without any cement. The building has a batter or inclination inwards, of nine inches in every three feet in height. The door on the south-east side is $3\frac{1}{2}$ feet high, and $2\frac{1}{2}$ feet broad. In the middle of the wall on each side of the passage by the door to the interior, is a small apartment, about six feet square and five feet high, as if intended for a guard to watch the entry. The highest part of the wall is 11 feet, but old people remember it twice that height. It is destroyed by the wantonness of cow-herds throwing the materials off the walls into the river. Beyond this building, and six feet from the wall, are the remains of an outer wall, which surrounded the castle, and an oblong garden of 27 yards long and 18 yards broad, to the verge of the rock. This wall seems to have been joined by large flags to the wall of the castle, leaving a passage of six feet broad by seven feet high between the two walls, where it is said they kept their cattle in the night time. In the face of the rock, at *a*, is an oblong seat, where tradition

Neele sc Strand

CASTLE COLE, AN ANTIENT CIRCULAR BUILDING,
on the Bank of a River of South [illegible] Parish of Clyne in the County of Sutherland.

tradition says, *Cole* used to rest himself, fronting the meridian sun, and that there he was slain with an arrow from the bow of an assassin, and that when Cole felt the wound, he struck his hand upon the rock, which made such an impression, that it remains there to this day.

A ditch appears to have carried the water of the river round to the land side, which is now filled up with rubbish.

There are the ruins of the Pictish buildings, now called *Cairns*, or *Dŭnes*, at Dunrobin, and on the several straths connected with the south-east and north coasts of this county. In the parish of Golspie, near Craigton, subterraneous buildings have been discovered, having a small oblique entry from the surface, of about 2½ feet in the side of the square, which after advancing three yards, widens to about three feet in the side of the square, which winds a few yards to an apartment of about 12 feet in the side of the square, and nine feet high, covered on the top by large broad stones, which terminated in one stone like a mill-stone, with a hole in the centre, probably to emit smoke. A passage from the room led to other rooms, inaccessible, owing to the earth falling in.

At Bakies, above Dunrobin, is a very large cairn, with subterraneous passages, now choaked up.

At Kildonan, is a cairn on each side of the river, with a passage said to be under the river from the one to the other. On a high rock between Naver and Torsdale, are the remains of a large circular building, and the rock on which it is built is very difficult to ascend.

At Shiberscross there is a large circular cairn, and on a high heathy hill near it, there are about 50 round tumuli, in regular order, at about 12 yards distance from each other; and in front of them, a few yards lower down the hill, are the remains of two square forts, 20 yards in the side,

side, having angular works on the corners. This seems to have been an encampment in some remote period, of which the people there have no tradition. There are remains of such encampments on Strath-fleet, Brora, &c.

Dun-Dornadil, and Castle Cole, are the only buildings of the circular kind that are not reduced to a heap of rubbish, within this county.

DUN-DORNADIL.

Dun-Dornadil, or *Dornadilla's Tower*, in ruins, stands in the valley of Strathmore, in the parish of Durness. A sketch of the ruins is annexed, (see *Plate* X.) which is a complete specimen of ancient Pictish architecture. Some old people in the parish remember a part of the walls 30 feet high; but the same cause that demolishes Cole's Castle, equally injures this residence of the ancient Chiefs of the Fingalian race.

It is evident, that at the period when this fabric was reared they had no instruments of iron; not a stone of them is moulded by a hammer, nor is there any fog or other material used to fill up the interstices among the stones; yet the stones are most artfully laid together, seem to exclude the air, and have been piled with great mathematical care, else could they have remained in a tower like this, thirty feet high, so as to have withstood the casualties of more than 1000 years? In the ninth century, when the communication of these northern territories with the continent freely opened, they could not fail to learn the use of cement in building, if they had not before discovered it; and to obtain instruments of iron. From these circumstances we may be enabled in some measure to ascertain the so-much contested era of Ossian's

DUN DORNADIL or DORNADILLA'S TOWER,

An Antient Ruin in Strathmore, Parish of Barnes.

Ossian's heroes, as well as that of the Pictish towers. The car-born Chief, implies a proficiency in arts, almost incompatible with a state of life where the application of metal is unknown. The Bards were men of renown at the above period, when the Scandinavian adventurers infested the northern coast of Scotland, and the Western Isles: the commanders of fleets and the leaders of armies carried them along to celebrate their achievements, and to narrate the difficulties and dangers which their fortitude and prowess overcame*. The same enthusiasm which inspired the Bards in the day of battle, would lead them to indulge the expression of softer sentiments in days of ease, and strains of lamentation in the pensive hours of sorrow. These hereditary songs were preserved by oral tradition, and many of them were put upon record by a Danish historiographer in the Island of Flota, one of the Orcades. Perhaps the poems attributed to Ossian, the son of Fingal, are the productions of various bards, preserved in the above channel of oral traditions: even to this day, some Highlanders are at equal pains in teaching Ossian's poems to their sons, as in teaching them the principles of the christian religion.

A particular description of this structure, its romantic situation, and external form, is given in the article *Dun-Dornadilla*, p. 105, &c. of "Antiquities and Sceneries, by the Rev. Charles Cordiner, of Banff." It is celebrated as a place of renown by an ancient Erse ballad of a few lines, of which the following is a translation.

"Seven miles from Ocean, in the cheerful dale,
"Stands the large tower where Dornadilla reigns;
"From whence, when war, or civil feuds prevail,
"The warriors pour into the Caithness plains."

* See Torpheus' Authority, Antiquities and Sceneries, of Scotland, p. 150.

No. III.

Hints regarding the State of the Parish of Kildonan.

As the report received from the Rev. Mr. Sage, Minister of Kildonan, shews how the Highlanders lose by keeping an over stock of cattle, and how the decay of their natural woods (with which their valleys once abounded) diminishes the quantity of grass, as well as shelter, &c. I think it right to insert it here, *verbatim*. It is as follows.

" The parish of Kildonan has, in the course of the last three years, undergone a very great alteration, with regard to their stock of every sort of cattle. In harvest 1807, the inhabitants sustained almost a general loss of all sorts of crops. In spring 1808, from a general loss of all sorts of cattle, cows, horses, sheep, and goats; and from the great quantity of victual required by the parishioners, and the very low price of cattle in the years 1807 and 1808, the inhabitants were reduced to less than half the stock they used to have. In spring 1808 there were at least lost within the parish of Kildonan, 120 milch cows, 500 yell cattle, small and great, and about 300 horses.

" From these causes, and three pendicles or farms occupied by about 26 tenants, being let to sheep-farmers, (*i. e.* Halmydary, Seisgill, and Towary), the population is decreased. In the course of the last two years, upwards of 40 families (making an average of five persons each) emigrated to Aberdeen, and several other towns in the south of Scotland; many of whom were obliged to solicit aid from their friends, and well-disposed people, to transport them to Aberdeen, &c. That through the distressed situation of the Highlanders, the

loss of their horses, the weakness of those that escaped, the scarcity of food and seed, the labouring in spring 1808 was very deficient, but what was laid down, proved a tolerable crop; and as the low country had a good crop, no serious want was felt the immediate last summer. That in spring and summer 1808, there were upwards of 1000 bolls of victual bought by the inhabitants of the parish of Kildonan, (a great part of which was imported by the factor for the family of Sutherland), and divided among the people, according to their consumption, which, with the considerable augmentation of their rents, which were every where doubled, and in some places trebled, and took place in harvest 1807, with the other circumstances above alluded to, reduced the greater part of the tenants to a low extreme; but the kind interposition of Providence, in giving this year (1809) a favourable seed-time, they got their small crops completely down, and have the finest appearance ever seen in the place (and, barring mildews, to which most of their lands are subject), they will have some chance of retrieving yet, notwithstanding the uncommon disasters which they experienced.

"The brisk demand for black cattle this year, will enable the greater part of them to pay the great arrears into which they have fallen in the course of the last three years; and another occurrence which contributed to their relief this year, is the number of Irish horse-jockies who came to the county, and bought all the old horses *(garrons)* they could find, at a tolerable good price, with all the refuse of that species of animals, and in short, every sort they could procure. And this circumstance will not only help them to pay their rents, &c. in the mean time, but will enable them hereafter to rear more

more black cattle, which is by far a more profitable kind of stock for the Highlands, than horses.

" There is another remarkable alteration on the face of this part of the county in the course of the last 20 years: the woods, with which a great part of the straths were covered, are naturally decaying, and this is attributed to the uncommon severe frosts, and storms of snow, that happened of late years in the months of April and May; and a striking proof of this took place last May, when the woods and shrubs were in the most thriving state they ever were seen, a severe storm of frost and snow came on, which blasted a great part of the natural woods irretrievably. This decay of the woods is against the rearing of cattle; for while the woods were thriving, a great many of the inhabitants out-wintered their cattle till the beginning of January, whereas they must now house them in the beginning of November; and where the wood wasted away, it is overgrown with coarse strong heath, in place of the fine strong grass with which the woods abounded, which occasions a degeneracy of black cattle in the parts that were formerly covered with wood.

" With regard to the state of agriculture in this place, its local properties, particularly in the height of the strath of Kildonan, will not admit of doing any thing considerable or effective in this way, as the quality of the soil is bad, lying on a rugged bottom interspersed with rocks, hollows, links, and braes, except some dales or plains on the water-side, which are generally a poor sandy, insipid sort of soil, subject to speats, (floods) or mildews; yet in the course of their last leases, the tenants have forced a good deal of land out of the skirts of the moors lying next their arable land; but since their leases are out, their exertions are slackened, and keeping tenants in a

state

state of suspense, is a ready way to ruin the tenants and hurt the proprietor's interest. Roe and deer, with which the forests of this county abounded, a part of which was in the height of this parish, are extirpated; its now rare to see one of them, even in the heart of the forest, excepting a few straggling ones, hunted from place to place.

"About three years ago, an epidemical distemper was discovered among the moor-fowl (grouse), of which the most of them died; many of them were seen falling dead on the flight: this preceded the loss of cattle. In the lower part of this parish, the soil, though liable to mildew, is fertile, and produces good crops. There was a victual-rent paid to the proprietor prior to 1727, called tiend-meal, which was since converted, for the convenience of the proprietor and tenant.

"ALEXANDER SAGE,
"Minister of Kildonan."

No. IV.

Statistical Table of the County of Sutherland, by Parishes, from the Statistical History of Scotland, in 1798.

Parishes.	Vol.	Page	Population in 1775.	Population in 1790-1798.	Increase.	Decrease.	Valued Rent, Scots. £. s. d.	Real Rent, Sterling. £. s. d.	Ministers' Stipends. £. s. d.	Number of Scholars.	Schoolmasters' Salaries. £. s. d.	Number of Poor.	Capital of Poor Funds. £. s. d.	Annual Collections. £. s. d.	Income of the Poor. £. s. d.
1. Assynt - -	XVI.	163	1934	3000	1066	—	2666 13 4	1000 0 0	94 0 0	—	—	—	—	—	—
2. Clyne - -	X.	298	1406	1060	—	346	2983 0 0	700 0 0	96 0 0	—	8 6 8	—	—	—	—
3. Criech -	VIII.	362	1705	1730	25	—	—	1040 0 0	62 0 0	—	5 11 1½	50	—	4 10 0	4 10 0
4. Durness -	III.	576	1000	1182	182	—	—	450 0 0	46 13 4	45	5 11 1½	35	57 10 0	—	12 0 0
5. Dornoch -	VIII.	1	2780	2541	—	239	—	1400 0 0	116 0 0	—	—	90	—	6 10 0	6 10 0
6. Edderachylis	VI.	278	869	1024	155	—	—	230 0 0	47 0 0	—	—	—	—	—	—
7. Farr - -	III.	528	2800	2600	—	200	—	1355 0 0	48 0 0	—	—	54	—	—	—
8. Golspie - -	IX.	26	1790	1700	—	90	—	700 0 0	100 0 0	—	—	100	53 0 0	6 0 0	8 0 0
9. Kildonan -	III.	405	1433	1365	—	68	—	400 0 0	50 0 0	—	—	—	—	—	—
10. Lairg - -	XI.	569	1010	1350	340	—	—	600 0 0	48 0 0	—	—	—	—	—	—
11. Loth - -	VI.	311	1193	1370	177	—	2664 4 8	713 13 5¼	66 0 0	35	5 11 1½	—	—	—	—
12. Rogart -	III.	563	1761	2000	239	—	—	640 0 0	57 0 0	—	—	50	—	—	7 0 0
13. Tongue -	III.	517	1093	1439	346	—	—	525 19 0	54 0 0	40	—	50	—	—	—
			20,774	22,361	2530	943	—	9754 12 5¼	884 13 4	—	—	—	—	—	—

Population in 1775, ...	20,774
Ditto in 1790-1798, ...	22,361
Increase, ...	1587
Increase on the whole, ...	2530
Decrease on the whole, ...	943
Increase, ...	1587
Dornoch, the only town in the county, about	500
Consequently in the county part and small villages,	21,861

The valued rent of each parish not known to Sir John Sinclair; but the total valuation of the county, is in Scots money, ... £26,193 9 7

(Sterling, 2182*l.* 15*s.* $9\frac{2}{12}$*d.*)

Of which the Sutherland estate is	16,024	6	1
The Reay estate	3556	0	0
Skibo, Pulrossie, and Newtown, ...	1904	11	2
Bighouse, ...	900	0	0
The Strathy estate, ...	564	0	0
Pronsy, Rearquhar, and Palgrudy wadsets,	530	0	0
Poyntzfield, ...	466	13	4
Balnagown, ...	431	18	0
Rose-hall, ...	400	0	0
Cadboll, ...	354	0	0
Embo, ...	346	0	8
Ospidale and Ardeans, ...	253	6	8
Criech, ...	200	0	0
Achany, ...	100	0	0
Melness wadset, ...	91	13	4
Over-Skibo, ...	71	0	4
Total, ...	£26,193	9	7

Fourteen proprietors and four wadsetters.

Freeholders in 1790, 35.

Real rent, 9754*l.* 12*s.* 5¼*d.*; including rent of Dornoch, perhaps 200*l.*, and fisheries, 373*l.* 6*s.* 8*d.*

Ministers' stipends, 884*l.* 13*s.* 4*d.*; average, 68*l.* 1*s.*

Number of scholars in three parishes, 120; in the whole county, supposed 700.

Schoolmasters' emoluments not particularised, perhaps 12*l.* each; 156*l.* altogether, including salaries.

Number of poor in seven parishes, 429; in the whole county, computed at 800.

Capital of poor's funds in three parishes, 114*l.* 10*s.*; scarcely any in the others.

Income of 379 poor only 46*l.*, or 2*s.* 6*d.* each.

Extent, according to Sir John Sinclair, 2310 square miles, 1,175,790 Scots acres, or 1,478,400 English acres.

Stock.

	Horses.	*Cattle.*	*Sheep.*	*Goats.*
Assynt,	384	3840	3840	1024
Clyne,	700	—	4000	400
Criech,	1531	—	4000	—
Edderachylis,	351	2753	2629	1307
Farr,	200	1500	600	220
Golspie,	350	1100	1000	—
Kildonan,	812	2479	5041	570
Loth,	500	—	1750	—
Tongue,	538	2142	2846	714
Clyne, Criech, and Loth, suppose about	—	3000	—	—
Nine parishes,	5366	16,814	25,706	4235
The other four parishes supposed	2370	7473	11,424	1992
Total Stock,	7736	24,287	37,130	6227

7736 horses, at 2*l.* 10*s.*	£19,340	0	0
24,287 cattle, at 2*l.*	48,574	0	0
37,130 sheep, at 5*s.*	9282	10	0
6227 goats, at 5*s.*	1556	15	0
	£78,753	5	0
In Lord Reay's forest, &c. 2000 red deer, stags, &c.	2000	0	0
	£80,753	5	0

No. V.

Statistical Table of the County of Sutherland, so far as the Reporter was favoured with Answers from the Clergy of that County, in 1808.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10	11.	12.	13.	14.	15.	16.
Parishes.			Population in 1790-1798.	Population in 1807-1808.	Increase.	Decrease.	Valued Rent, Scots.	Real Rent, Sterling.	Bolls of Victual-Stipend. / Ministers' Stipends, including 10*l* for each Glebe, or eight Acres.	Number of Scholars.	Schoolmasters' Emoluments, &c.	Number of Poor.	Capital Stock of Poor's Fund.	Annual Collections.	Total Income of the Poor, including Collections.
	Vol.	Page					*£.* *s.* *d.*	*£.* *s.* *d.*			*£.* *s.* *d.*		*£.* *s.* *d.*	*£.* *s.* *d.*	*£.* *s.* *d.*
1. Assynt - -	XVI.	163	3000	3200	200	—	2666 13 4	1500 0 0	— / 87 4 4 5/12	200	—	100	—	—	30 0 0
2 Clyne - -	X.	298	1060	—	—	—	—	*1050 0 0	— / —	—	—	—	—	—	—
3. Criech - -	VIII.	362	1780	1530	—	200	2983 19 0	*1500 0 0	80 / 55 13 4	20	*Minimum.*	58	—	9 0 0	9 0 0
										*25	*15 0 0				
										25	16 13 4				
4. Durness -	III.	576	1182	1114	—	68	—	* 900 0 0	— / 46 13 4	*24	*15 0 0	70	57 10 0	2 12 6	5 10 0
										*60	*15 0 0				
5. Dornoch -	VIII.	1	2541	—	—	—	—	*2000 0 0	— / —	—	—	—	—	—	—
6. Edderachylis	VI.	278	1024	—	—	—	—	* 550 0 0	— / —	—	—	—	—	—	—
7. Farr - - -	III.	538	2600	—	—	—	—	*2000 0 0	— / —	—	—	—	—	—	—
8. Golspie - -	IX.	26	1700	1710	10	—	—	1700 0 0	128 / 32 0 0	60	27 17 4	70	53 12 0	14 6 5	17 0 0
9 Kildonan -	III.	405	1365	—	—	—	—	*1000 0 0	— / —	—	—	—	—	—	—
10. Lairg - -	XI.	569	1350	—	—	—	—	*1000 0 0	— / —	—	—	—	—	—	—
11. Loth - -	VI.	311	1370	—	—	—	2664 4 8	*1000 0 0	— / —	—	—	—	—	—	—
12. Rogart - -	III.	563	2000	1800	—	200	1761 0 0	1166 12 6	36½ / 75 0 0	30	30 0 0	48	—	8 0 0	8 0 0
13. Tongue -	III.	517	1439	—	—	—	—	* 850 0 0	— / —	—	—	—	—	—	—
			22,361	—	—	—	26,193 9 7	16,216 12 6	— / —	—	—	—	—	—	—

Observations on the preceding Statistical Table.

Columns 1, 2, and 3, contain the names of the parishes, and the volume and page of the Statistical Account of Scotland, in which a description of each parish is to be found.

Columns 4, 5, 6, and 7, contain the population of Sutherlandshire in 1790-1798, and that of five parishes in 1807-1808. I received no return from the other parishes, although I took the liberty twice, of writing to the Ministers of each parish on this subject. These five parishes shew a decrease of 258 in their population, equal to an average of 51 decrease in each parish; but had I received returns from all the parishes of the county, the average decrease would be much greater. This is principally owing to the extension of sheep-farming in this mountainous district. The decrease of population would appear greatest in the parishes of Lairg, Edderachylis, and Farr, and even in Kildonan.

The population of this county in 1790-1798, was	22,361
It may be supposed in 1808, at about	21,260
(500 of whom may be in Dornoch, the only town within the county.)	
Decrease since 1798, about	1101

Column 8, contains the valued rent of the county of Sutherland, as entered in the records of the Exchequer at Edinburgh, amounting to 26,193*l.* 9*s.* 7*d.* Scots, or 2182*l.* 15*s.* $9\frac{7}{12}$*d.* sterling. Strath-halladale is included in this valuation, though a part of the parish of Reay, in the county of Caithness; but as I could not obtain any account of the valuation by parishes, it makes little

difference, as Strath-halladale, or the Bighouse estate, is a part of the county of Sutherland.

Column 9, contains the real rent of the county, calculated in such parishes as have sent *no* returns of that particular (marked thus *), at the progressive rise or difference of the rent, betwixt that in 1798 and in 1808, in the three parishes from which returns were received, which, upon the whole, is about the rent of the county, from the best information I could obtain, amounting in all to ..... sterling, £16,216 12 6

The salmon fishery on the rivers Helmsdale, Brora, Shin, and Naver, ...	£1500	0	0			
The fishery of Torsdale, Hope, and Dinart rivers, on Lord Reay's estate, ...	150	0	0			
Do. on the Bighouse, and Assynt rivers, supposed about	50	0	0			
The Kelp shores on the Reay estate	50	0	0			
				1750	0	0
The balance is the land rent, including about 200*l.* rent of houses in the town of Dornoch, ...				£14,466	12	6

Column 10, contains the stipends of five of the Clergy of the Established Church, who made returns of their income, or stipend, exclusive of their glebe, which ought to contain eight acres of arable land, or an equivalent of inferior ground. I find that the stipend of these five Ministers

Ministers in 1790 was 352*l.* sterling, (stating the Assynt stipend the same as now returned, viz. 87*l.*), and their present stipend appears to be 244½ bolls of victual (oatmeal, and bear, or big) and 296*l.* 11*s.* sterling; and converting the victual, at 20*s.* per boll, both amount to 541*l.* the present stipend of the five Ministers, making an average of 109*l.* each.

I find that in 1790, the stipend of the 13 parishes was 884*l.* sterling; therefore *as* 352*l.* : 541*l.* :: 884*l* : 1356*l.* 15*s.* the supposed present stipend of the 13 parishes, to which add 130*l.* for the thirteen glebes (I will *not* include about 45*l.* for communion elements, as that is expended, not for the Ministers, but the parishioners), which makes 1488*l.* for the whole, or an average of about 114*l.* sterling each of the 13 Ministers.

N. B. The Sacrament is administered only once in two years in the parishes of this county, to save expence!

There is a Missionary who assists the Ministers of the extensive parishes of Durness, Edderachylis, and Assynt, and receives 30*l.* per ann. from the Society for Propagating Christian Knowledge. There is another Missionary in the highland part of the parish of Farr, who receives an annual allowance from the above Society, and from the Marquis of Stafford, the proprietor. There are none of any other religious persuasion in this county, all are of the Established Church of Scotland; and perhaps there is no other county in Scotland, whose inhabitants are so unanimous in religious concerns. There are one or two Society Schools in each parish; and in Durness, and some others, a salary of 5*l.* to 8*l.* is given to women who teach the female children of poor parents.

Columns 11 and 12, contain the number of scholars, and the income of schoolmasters, for five parishes from whom

whom I had returns: the numbers (marked thus*) are Society Schools, and those not marked, are Parochial Schools, except Assynt; the Minister of that parish gave the aggregate number of scholars in the parochial and other schools. I find the number of scholars in these five parishes to be 444; the population of the five parishes is 9354, of course the scholars are to the inhabitants in the proportion of about 1 to 21. This proportion would make the number of scholars in the county 1012.

The salaries of six schoolmasters, in column 12, amount to 119*l.* 10*s.* 8*d.* which divided among six, gives the average of 20*l.* nearly to each schoolmaster; but the society schoolmasters receive school fees of from 6*d.* to 1*s.* 6*d.* per quarter, from such as can afford it. The average income of the schoolmasters of all the county may be estimated at 24*l.* each.

Column 13, contains the number of poor in the five parishes from which I received returns, viz. 346, which is in the proportion of 1 to 27 by the population of these five parishes; but I believe that had I received returns from the 13 parishes, the proportion would not be so great; it might be perhaps about 1 to 32.

Column 14, is the capital stock of two parishes, viz. 111*l.* 2*s.* the other three returned have none. The annual collections in five parishes is 33*l.* 18*s.* 11*d.* as per column 15. The total income of the poor in the five parishes, column 16, amounts to 42*l.* 10*s.* annually, or 2*s.* 2*d.* for each of the 346 poor in these parishes. A very small allowance indeed!

There are a few pounds annually collected in each parish, from fines for anti-nuptial delinquency; the usual session censure is commuted for the payment of one or two pounds for the poor of the parish. The poor

derive

derive their principal support from private charity; they go begging through the county, and even the county of Caithness, where they collect meal, &c. every housewife gives them either meal or other sustenance; and such of the poor as are confined to their houses by sickness or otherwise, are supported by the humanity and benevolence of their nearest neighbours, who send them food, &c.

State of Property. See p. 40.—The names of the Proprietors are very diversified, not three of one surname except *Munro*, and their proportion of the property but small. The lordship of Sutherland is by far the largest estate: next to that is Lord Reay's.

The prevailing surnames in the county, are Murray, Mackay, Sutherland, Grant, &c. This is one evident proof of the county being originally occupied by the Cattean Murrays from Germany, as stated in No. I. of this Appendix.

Extent of the County.—In the Original Report of the county of Sutherland, it is stated at 2310 square miles; 1,175,790 Scots acres, or 1,478,400 English acres. From the best information I could collect, as to the distances in miles, and the most correct calculation, made both by triangling the map, and covering it with fine paper, which I carefully weighed and calculated, I make it to contain 2925 square miles—equal to 1,872,000 English statute acres, or 1,497,600 acres, Scots measure (in the proportion of four to five, which is nearly the ratio of the two measurements).

Of

	Scotch Acres.
Of which arable land under, bear, oats, potatoes, pease, or grass, may be computed about	14,500
Green pasture and haugh meadow ground, about	35,000
Plantations of fir and hard wood, about 936; natural wood or shrubbery in the straths of the several rivers and rivulets, about 1350	2286
Mountains, hills, moss, salt and fresh water lakes, &c.	1,445,814
Total	1,497,600

The above calculation is, however, made on very general grounds, as must be expected in a county where but a small proportion of it has been measured; the arable land is computed from an idea of the rent per acre; the pasture from a mere comparative conjecture from travelling over the county; the fir plantation partly from measurement, and the natural shrubbery altogether from a conjecture of its apparent extent: this latter is rapidly decaying; but many parts of the straths on the south-east side of the county would do well for plantations of fir, oak, &c.

Live Stock.—People in general are strongly prejudiced against giving information on this head: the more superstitious consider it unlucky; others suspect a design of imposing new taxes, &c. The ministers of parishes, aided by their elders, are the only people who could obtain any correct account of stock, but it is attended with more trouble than many of them would choose to take.

I re-

I received returns of stock from only three parishes, which I will state, with that of the same parishes in the statistical account of Scotland in 1790, viz.

Parishes.	Per Returns in 1790-1798.				Per Returns in 1808.			
	Horses.	Cattle.	Sheep.	Goats.	Horses.	Cattle.	Sheep.	Goats.
1. Assynt - -	381	3840	3840	1024	90	2000	8000	60
2. Crieeh - -	1534	1300	4000	—	965	906	13,000	20
3. Golspie - -	350	1100	1000	—	260	1100	1000	100
Total of three parishes	2265	6240	8840	1024	1215	4006	22,000	180

By making a similar comparative calculation of the live stock in the other ten parishes, the numbers would stand as follows, viz. in the thirteen parishes, about 4291 horses, 17,333 cattle, 94,750 sheep, 1123 goats, and 270 swine.

4291 horses, exclusive of a few large ones on the proprietors' farms, &c. at 6*l.*	£25,746	0	0
17,333 cattle: 350 at 12*l.* and 16,983 at 3*l.* 10*s.*	63,640	10	0
94,570 sheep: about 14,000 natives, at 6*s.* and 84,570 of the black faced and Cheviot breed, at 12*s.* ..	54,942	0	0
1123 goats, at 6*s.*	336	18	0
270 swine, pigs or hogs, at 20*s.*	270	0	0
Total	£144,935	8	0

About one-eighth of the above are sold out of the county annually, equal to 18,117*l.* sterling.

Agricultural Produce.—In a county where no regular returns could be got, of any system of rotation of crops, on a mo-

a modern plan, I could only form a data from the best information the country people would give, and from which the following table has been drawn up. It is as accurate as can be expected in a matter of so fluctuating a nature.

Crops.	Scots Acres.	Bolls per Acre.	Price per Boll.	Produce per Year.			Total Sterling.		
			s.	£.	s.	d.	£.	s.	d.
Oats, either Blainsley or black	8056	5	15	3	15	0	30,210	0	0
Bear or big - -	4400	5	20	5	0	0	22,000	0	0
Wheat - - -	10	7	30	10	10	0	105	0	0
Pease - - -	90	4	20	4	0	0	360	0	0
Potatoes, no manure -	1511	12	8	4	16	0	7252	16	0
Turnips, Dunrobin, &c. -	50	—	—	6	0	0	300	0	0
Flax, no seed got - -	—	—	—		—		—		
		Stone.							
Sown grass, principally at Dunrobin - -	383	200	8	6	13	4	2553	6	8
Natural meadows, haughs, &c. the straths being narrow, may be -	1000	80	4	1	6	8	1333	16	0
	15,500								
Pasture for 4291 horses, for summer months, at 10s. - - -			£.	2145	10	0	64,114	18	8
Ditto for 17,333 cattle, ditto, at 10s. including town and hill pasture, -				8666	10	0			
Ditto for 94,570 sheep, Cheviot, &c. do. at 2s.				9457	0	0			
Ditto for 1123 goats, ditto, at 1s. - -				56	3	0			
Ditto for 270 swine or hogs, at 3s. - -				40	10	0			
							20,365	13	0
Add about 500 red deer in the Reay Forest, pasture at 6s. is - - - - - - - - -							150	0	0
Total, - - - - -							84,630	11	8

There is no wood sold from the plantations, as yet, except to tenants for repair of houses, and labouring utensils.

From the above calculation, the 8056 acres yield 40,280

40,280 bolls of oats, or, at two-thirds, 26,854 bolls of meal.

The 4400 acres of bear, yield 22,000 bolls, or, at one and a half, 33,000 bolls of meal.

The 90 acres pease, yield 360 bolls.

The 1511 acres of potatoes, yield 18,132 bolls; which make an average of from two to three bolls of meal, and about one boll of potatoes to each individual of the population. This accounts for the annual import of victual to the county of Sutherland. However, as the returns of bear in the northern straths of this county are very productive, owing to the great proportion of cow-dung laid on lazy-beds for bear, they in some places have from 10 to 12 bolls from the acre: perhaps the above average is rather below, than above the real produce of the county. It is the most fair conjectural calculation I could make from information or personal inspection.

Manufactures, Fisheries, Minerals.—The principal branch of manufacture, was the cotton business at Spinningdale, as before stated, but now discontinued. While the Dutch ports were open, the shop-keepers in Dornoch, Golspie, Brora, &c. imported dressed flax from Aberdeen, which they gave out to the young women through the county to spin, at about 10*d.* per spindle, or four hanks. This branch of industry might bring about 3000*l.* per annum into the county. There was a very small proportion of the woollen stuff made by the country females, sent to the Caithness markets.

There are about 250 tons of kelp manufactured annually from the sea-weed along the shores of this extensive county, principally on the Reay estate; 250 tons at 12*l.* is 3000*l.* A great quantity might be made in Assynt, were

were it not that the people, occupying spots of land along the shore, make it a stipulation with the proprietor, that they must have the sea-weed for manure, which they cut every second year for that purpose.

The rent of the salmon fishery through this county is now about 1700*l.* per annum; valuing the produce as to rent, it amounts to 6800*l.* From December 1806 to March 1807, there were 30,000 lobsters caught between Bighouse-bay, on the north coast, to Rou-stoir, in Assynt, on the west coast. The fishermen received 3*d.* each for them, or 375*l.* They were all carried in smacks to the London market, where their value might be about 7000*l.* There are about 37 fishing boats on the coast of Assynt, reckoning about one boat to five fishing families: these contract with Mr. M'Donald, in Coulag, for their cod, and herring, in the season. Haddocks caught are consumed by themselves. I could not obtain any information as to the produce per boat in the year; but as cod, ling, and haddock, are in great abundance along their shores, if they were industrious they might produce 100*l.* per boat per annum. There are many fishing boats along the north coast from Assynt to the boundary of Caithness. Scourie, Loch-Eribole, and Port Sherra, are good stations, for contractors to receive their fish. Scourie in particular, would do well for a fishing village. There is a fall of water for a manufactory, and not far from fuel, about 160 acres of arable land, and a safe harbour for shipping in Loch-Laxford, within four miles of it. Upon the south-east coast of the county there are from 20 to 30 small boats, who fish for haddock, which is sold to the country people. Three boats at Golspie make about 150*l.* per annum from haddocks; the fish is principally given in exchange for meal, butter, and cheese, to the country people.

The

The principal articles of export from this county, are cattle, small horses, sheep, wool, salmon, and cod fish. The imports are meal, salt, tea, sugar, and snuff, and other groceries by the retail, shopkeepers' cotton goods and woollen cloths; coals, and tar for sheep-smearing. The butter and cheese made, is nearly consumed in the county.

The only minerals in the county, are limestone and marble. Mr. Jopling, marble-cutter at Gateshead, Durham, has taken away a cargo of marble from his quarries in Assynt, the value of which has not been communicated to the Reporter. There is very little limestone used.

Statistical Table of the County of Sutherland.

Extent in square miles, including salt and fresh water lakes,		2925
Ditto in English acres, statute measure,		1,872,000
Ditto in Scotch acres,		1,497,600
Ditto arable acres,	14,500	
Ditto meadow and pasture (green)	35,000	
Ditto in fir plantations, &c. about	936	
Ditto in shrubbery of birch, willow, &c.	1350	
Mountains, hills, moors, moss, water, &c.	1,445,814	
		1,497,600
Horses,		4291
Cattle,		17,333
Sheep,		94,570
Goats,		1123
Hogs or swine,		270
Value of live stock (exclusive of deer),	£144,935	8 0
Value of agricultural produce,	84,630	11 8

	£	s.	d.
Value of manufacturing, commercial, fishery, and mineral produce; say salmon 6800*l.* kelp 3000*l.* cod fish, 1000*l.* wool 11,000 stone, 5500*l.* ..	16,300	0	0
Number of Proprietors, 13.			
Valued rent, Scotch, ...	26,193	9	7
Ditto in sterling, ...	2182	15	$9\frac{5}{12}$
Real land rent, sterling, about	14,466	12	6

Number of inhabitants in 1790-1798, ...	22,361
Ditto in 1811, ...	23,629
Number of fighting men, ...	3543
Inhabiting towns, about	500
Inhabiting small villages, Golspie, Brora, Spinningdale, say, ...	200
Number of inhabitants to each square mile (of land), nearly	8
English acres of land to each inhabitant, ...	$85\frac{3}{4}$

	£	s.	d.
Ministers' stipends, ...	1488	0	0
Average to each Minister, about	114	0	0

Scholars, 1012.

Schoolmasters' salaries and emoluments, about 312*l.*

Average to each of the 13 parochial schoolmasters, 24*l.*

N. B. There are about 20 Society Schools, salary from 5*l.* to 15*l.*

Poor, 650.

Capital stock of the poor's fund—*no returns.*

Annual income of the poor in five parishes, is 42*l.* 10*s.*

Average to each in said five parishes, 2*s.* 2*d.*

No. VI.

No. VI.

Valuation of the County of Sutherland, by Parishes, as reported to the Exchequer at Edinburgh, on the 5th October, 1802.

				Scotch. £	s.	d.
Assynt—Right Hon. Earl Gower, ...				1500	0	0
Criech—Earl Gower, ...	£149	14	8			
Skibo, ...	964	18	2			
Sir C. Ross, ...	431	18	0			
Rose-hall, ...	400	0	0			
Cadboll, ...	354	0	0			
Dugd. Gilchrist, ...	253	6	8			
H. Houstoun, ...	200	0	0			
Capt. K. Mackay, ...	230	2	1			
				2983	19	7
Clyne—Earl Gower, ...	1040	6	0			
Colin Mackenzie, W. S.	144	13	1			
Carrol, ...	100	7	4			
Uppat, ...	19	1	2			
				1304	7	7
Dornoch—Earl Gower, ...	1773	14	1			
Skibo, ...	399	9	6			
Cuthil—R. Baigrie, ...	215	15	5			
Embo, ...	346	0	8			
Poyntzfield, ...	163	17	10			
Over Skibo, ...	71	0	4			
				2969	17	10
Durness, Tongue, and Edderachylis—Lord Reay, ...				3720	8	5
Carry forward, ...				£12,478	13	5

				Scotch.		
Brought forward, ...				£12,478	13	5
Farr—Earl Gower, ...	2140	17	4			
Borgiebeg, ...	248	8	8			
Lord Armadale, ...	564	0	0			
				2953	6	0
Golspie—Earl Gower, ...	2165	0	0			
Culmaly, ...	205	5	11			
Rhives, &c.	202	4	8			
Balblair, ...	49	6	6			
Uppat, ...	59	14	10			
				2681	11	11
Kildonan—Earl Gower, ...	677	11	0			
Badinloch, ...	224	6	9			
Ulbster, ...	201	16	2			
Balblair, ...	175	9	11			
West Garty, ...	130	15	7			
Gartymore, ...	95	12	11			
				1505	12	4
Loth—Earl Gower, ...	1095	6	6			
Carrol, ...	202	13	11			
C. Mackenzie (2566*l.* 14*s.* 6*d.*)	64	8	9			
Crakaig, ...	321	14	1			
West Garty, ...	85	12	7			
Helmsdale, ...	228	3	4			
Navadale, ...	228	13	4			
Gartymore, ...	116	6	5			
Sethmore, ...	223	15	7			
				2566	14	6
Lairg—Earl Gower, ...	494	18	0			
Shiness, ...	259	18	8			
Torboll, ...	210	6	1			
Poyntzfield, ...	302	15	6			
Achany, ...	78	2	9			
				1346	1	0
Carry forward, ...				£23,531	19	2

Brought

				Scotch.		
Brought forward, ...				£23,531	19	2
Rogart—Earl Gower, ...	1108	4	4			
Muy, ...	203	18	0			
Gen. Wemyss, ...	239	2	8			
Dempster, ...	94	6	0			
Achany, ...	21	17	3			
Lealty, ...	94	2	4			
				1761	10	7
Reay—Bighouse, ...				900	0	0
				£26,193	9	9

No. VII.

Letter from Mr. Isaac Jopling, of Gateshead, Durham, to the Secretary of the Society of Arts, &c. on the Marble Quarries in Sutherland.

In a letter of last June, from my good friend Mr. Charles Waistell, of High Holborn, I received, inclosed, a List of Premiums offered by the Society for the Encouragement of Arts, Manufactures, and Commerce, — in pages 18 and 19, he had marked for my notice the Society's resolutions and regulations concerning specimens of British Marbles. So far back as the year 1780 I began the business of marble-mason here, at Gateshead, in the county of Durham, which I have carried on ever since with some degree of success. In the year 1798 I was informed by my marble-merchant, who supplied me with foreign marble, that the French had got possession of Carrara, and that it was not likely that marble could be again imported into England from Italy for many

years. As I had, from the writings of Camden, Knox, Pennant, Williams, and others, obtained a knowledge that there was white marble in Sutherlandshire, I made an agreement with the Countess of Sutherland, and the Earl Gower, for a lease of the marble quarries to be found in the county of Sutherland; and in May, 1799, I carried several Englishmen north, to search for marble. I spent seven summers and two winters in Assynt, a parish situated in the north-west corner of Sutherlandshire, not less than fifty miles from a market-town, where there had never been a road, a cart, or a smith who could shoe a horse; during which time I opened many quarries of marble, and made, at least, fourteen miles of road, through heretofore impassable mosses, bogs, and rocks, to the sea. The difficulties and disadvantages I have laboured under were innumerable: meat, coals, iron, and every article were to fetch from such a great distance; and the people, "torpid with idleness," as Mr. Pennant expresses it in his Tour, and to which I refer for a description of this place, would do nothing for me without an exorbitant price, and never till it suited their own convenience; and from having no markets, and not being in the habit of selling, they could never be persuaded to part with any article at less than nearly double its worth. To help forward the road, I was, indeed, allowed the statute labor of the parish; but, after trying them awhile, so averse were they to work, that I refused to receive them, rather choosing to finish the road with my own men. The first summer was spent in trying and searching after quarries; the second, third, and fourth, were spent in making this road, which road Lord Reay passed about seven years ago, and last summer Mr. Anderson, a son of Dr. Anderson, who published the *Bee:* each of these can tell what an arduous task

task it was to make a road in such a country; and I believe they are both members of your's, or the Royal Society.

In 1806 I visited Ashford, in Derbyshire, to see the machinery there for sawing and polishing marble, and had a model made in London, like one which I saw that year in your rooms, said to be the model of a machine working at Torbay: my intention was to have had such-like machinery erected near the quarries, and to have dwelt there, and superintend the works; but not meeting with the encouragement which I needed, I did not afterwards return to Assynt, as I saw clearly it was only throwing away more money where I had already expended far too much for one individual to venture. I however still kept men at the quarries, and have since that time got one sloop-load of marble brought away, and have another nearly ready, and have yet ten years of my lease unexpired.

I have sent you a set of specimens, the produce of these quarries, and several other kinds of British marbles which I had by me. They are made 8 inches by 6, and 1 inch thick, except some that have been cut for veneers; yet, nevertheless, I backed them to the thickness with stone, and sent them also; they are as follows:—No. 1. A white marble that will saw and work with a tool, but takes a bad polish. I sunk several yards deep in this quarry, but could not find it better. About ten years ago, I proposed this marble to A. Davison, Esq. for building the Naval Pillar then subscribing for, and he and I exchanged two or three letters upon the subject; since that time I got Mr. James Smith, who is now making Lord Nelson's monument, to carve a small head of this marble, which I believe is now in the pos-

session of Mr. Atkinson, architect. This may prove a useful stone, but cannot be got in large blocks; and it has some narrow blue veins scattered through it. Nos. 2, 6, 8, 12, 14, and 16, are the produce of those quarries near No. 1; these all saw, work and polish easily, and can be got pretty large, and are all situated near half a mile up the sloping side of a hill. No. 4, is from a quarry close by, and under a small river, near half a mile from the former seven. In dry weather I have seen this marble bare six or seven yards by four or five, but it had all the appearance of being cracked. Although I have sent but one specimen of this kind, yet there is considerable diversity in the quarry, and it is compact, fine, and easy to work and polish, and is the very marble Williams described in his Mineral Kingdom, as pure white marble, fine as the Parian, and to be had of any size, without cracks or flaws, and situated under the bed of a small river, near a quarter of a mile from the house of Ardloch: this is exactly the situation; but for its being pure white, large, and solid, no doubt he fell into these errors by seeing its surface bleached by the weather, and making no further examination. I had people working here above a year, but never could get sound blocks of it large enough for chimney-hearths; no doubt larger blocks might be had going deeper. I have seen some of this burnt to very fine lime, and because it would make lime the inhabitants laughed heartily, to think a man should travel so far, and mistake his aim so much, as to take limestone for marble; for though they have a burn called in Gaelic, *Ault na Marable*, (Marble River), they had no idea of marble when they saw it. No. 10, is got near a quarter of a mile further down the river, and is very hard to saw, work and polish: this water is called Lyne, and the place Ledbeg, and I suppose it is

fourteen

fourteen miles from hence to the sea at Ullapool, where there is a very safe natural harbour, where sloops may lie secure in any weather, and take in a cargo from the end of a rock which projects a little into the sea; the surface of this rock I levelled to serve as a pier, and to this place I made the road. Nos. 3, 5, 7, 9, 13, and 15, are from quarries at Coubin, a place upon the said road about seven miles from the sea: these marbles, with some others in their vicinity, I discovered entirely myself, as it was never supposed there was any marble there, and that at Ledbeg it was, by those who wrote, supposed to be white. When I showed this Coubin marble to workmen in London, and fell into conversation with them about it, they seemed all to think it unique: it is hard to work and polish, but beautiful, and when polished, will retain it much better than softer marble; and I hope the public will rank these among the best foreign coloured marbles.

All these sixteen are specimens of the quarries I have opened: there are several other kinds in the district, but not so well situated for bringing away. Of these marbles I have made many chimney-pieces, particularly for Donald M'Leod, of Geanies, Esq. Sheriff of Ross-shire; Sir George Mackenzie, of Coul, Ross-shire; Colonel Duff, of Fetteressoe, Aberdeenshire; Colonel Mitford, Exbury, near Southampton; and Admiral Sir Samuel Hood, London. I sent also several other chimney-pieces, made of it, to London, of which I believe the Duke of Athol got one to send to the Isle of Man; but for an account of the others, and of several that were made of it by workmen in London, I beg leave to refer to William Atkinson, Esq. Architect, No. 20, Bentinck-street Cavendish-square, to whom I am much indebted for having recommended it.

Nos.

Nos. 17, 18, 19, 21, and 22, are varieties of serpentine from Portsoy, in Banff-shire, which place I visited before I went to Assynt: this rock runs right into the sea, and I was of opinion that large blocks were not to be procured. In the middle of this serpentine runs a very coarse marble, a specimen of which I have sent, marked 20. No. 23, is a specimen of the Duke of Argyle's marble from the Isle of Tyrie; this is a beautiful marble, and I once, long ago, went from this place to Edinburgh, on purpose to see a sloop-load of it, but they would not sell it under three guineas and a half per solid foot, for which reason it never made its way into use.

Nos. 24 and 25, are from Kilkenny, in Ireland; 26, from a place called Gallow-hill; 27, from Belsay-castle, both in Northumberland: this last belongs to Sir Charles Monk, and can be had sound almost any size. 28, 29, and 30, are from Frosterly, in Weardale, in the county of Durham; these are taken from a thin stratum of the great limestone which stretches far through this country, and is to be seen both in Teasdale and Weardale. 31 and 32 are both from above Wearhead, but I believe cannot be got large, as far as I made trial; and no person knew of it, or ever attempted to work it but myself, about thirteen years ago. 33, 34, and 35, I suppose are from Devonshire. No. 36, Derbyshire-grey; this marble rises large in the bed, but so thin, that they seldom get more than one slab out of one block, as I was informed by the proprietor of the marble-works at Ashford.

I am exceedingly sorry that I was so late in obtaining a knowledge, that the Society had a wish to encourage a search after British marbles: these specimens might have been produced ten years ago, and perhaps such a sale for

for this marble might have been promoted, as would have reimbursed me for the expenses I have been at, the hardships I suffered in seven years' personal attendance upon a search for marble, in such a country, where, from bad houses and a wet climate, I was seldom dry, day or night, except in fine weather, of which there is but little, and for the loss my own business has sustained here in my absence. To this account of expense, hardships and loss, I might add a little of vexation, in having my tools broken, and frequently thrown into bogs; corn sown in my road; my oxen hunted before my face, for miles, with their dogs, and my grass eaten by their cattle for whole summers together.—This sketch may show how anxious I have been to bring forward this marble, though only an individual, having no funds but the savings made, during twenty years, from a business not very extensive.

As I live in the north of England, and have quarries in the north of Scotland, if I can be of any use to the Society in helping to promote their views in regard to British Marbles, I shall be happy to serve them; and if they think the Sutherland Marbles worth encouragement, I hope they will endeavour to bring them into notice.

I am, Sir,

Your obedient Servant,

ISAAC JOPLING.

Gateshead, Feb. 17, 1810.

No. VIII.

Plan for the Improvement of the Estate of Sutherland.—Drawn up by the late Hugh Rose, of Aitnach, an. 1786.

General View of the Sutherland Estate.—The lordship of Sutherland is unquestionably one of the most extensive and

and most populous estates, belonging to one proprietor, in the Island of Great Britain. Its extent, I believe, has never been accurately ascertained; but containing nearly two-thirds of the valued rent of the county, it must have at least one half of the extent of ground in it, or 1755 square miles, (739,200 English acres), and consequently it is equal in size to either of the valuable counties of Chester, of Derby, or of Warwick. In regard to its population, according to the best accounts that Mr. Rose could procure from the Clergy and others, the number of persons fit for labour, exclusive of superannuated people and children, amounted, in 1780, to about 8000; and including them, the population cannot be estimated at less than 12,000 souls. The inhabitants of this extensive property are represented to be a manly and civilized set of people, well educated, and well informed, according to their different stations in life, and still preserving a strong attachment to that noble family, under whose protection they and their predecessors have so long lived. The following is the account given by Mr. Rose, of the three great districts into which this estate is divided.

The Southern District stretches along the east coast of Sutherland almost without interruption, from Cyderhall on the Meikel Ferry, to the boundaries of Caithness, a distance of about 30 measured miles. The arable land of this district is, in general, a good kindly soil, fit for producing every kind of grain that is raised in any part of Scotland, having at the same time a great advantage in regard to manure, from the quantity of sea-weed that is thrown in upon the coast, likewise an inexhaustible fund of limestone and sea-shells, and also every where water-carriage, with great abundance of sea-fish, such as cod, haddock, &c. not forgetting two excellent salmon fisheries on the rivers of Brora and Helmsdale. The inhabitants of this part of the estate, raise considerable quantities

tities of corn, such as barley, oats, pease, &c. Grain is their staple commodity for paying their rents and maintaining their families; in addition to which, however, they rear a few black cattle for sale, and spin some linen yarn for the manufacturers of Aberdeen and other places.

The middle district, consisting of the parishes of Kildonan, Rogart, Lairg, and a part of the parish of Clyne, are countries detached from the sea. They have, it is true, a good deal of arable land, but not of the like good quality with that on the coast. Black cattle, hill horses, sheep, and goats, are the staple commodities on which the inhabitants depend for the payment of their rents, and the supplying themselves with the necessary articles of living. In this district, they scarcely raise corn sufficient to support the inhabitants for more than one-half or two-thirds of the year, nor has industry, in the way of spinning or manufacture, yet reached them to any degree.

The third, or Northern District, comprehends the parish of Farr (known also under the name of Strathnaver) and the parish of Assynt, countries bordering on the Northern or Western Ocean. The inhabitants of these parishes are exactly in the same situation with those last mentioned; but with this exception, that such of them as are situated within a few miles of the sea-coast derive also some advantages from fishing. The greater part of this district, however, is inland (particularly in the parish of Farr) where the rays of industry have never as yet dawned, and which, it is believed, is in much the same state and situation now, that it was 200 years ago. There are good salmon fishings on the rivers of Naver and Torrisdale, in the parish of Farr, and also on the rivers Inver and Kirkaig, in Assynt. In many places in this district the plough is not used at all. The ground intended for corn is turned over either with the spade, or

with

with a foot plough, called by the natives *cas chromb*, made of a birch tree, of a particular bend, and the point of it shod with iron. (*See a Sketch of it*, p. 57.)

Forests.—An extensive part of the Sutherland estate is appropriated to the feeding of mountain deer, of which, it is said, that there are on the whole estate above 1000. Little advantage is derived from this mode of occupying land, and as it has gone out in other places, it probably will in process of time become equally unusual in these northern districts.

The preceding observations will give a general view of this extensive property, which it was thought not proper to separate, though some of them relate, not to the eastern, but to the interior and western districts of the county.

Means of Improvement.—The following measures were suggested by Mr. Rose, and other friends to improvement, for meliorating the condition of the inhabitants of Sutherland, many of which are applicable not only to that county, but also to the northern parts of Scotland in general.

1. *Abolition of Personal Services.*—To emancipate the people at large, by freeing them from every species of personal service, is the first step that ought to be taken, for improving this part of the kingdom. Every individual would thus have the full use of his own time, would be enabled to manage his own affairs without molestation, and, from the very beginning, would be able to pay an adequate sum in lieu of those exactions.

2. *Culture and Manufacture of Flax.*—Every possible means should be taken to introduce that particular spe-

cies

cies of industry which seems the most suitable to a country so very extensive as Sutherland, and to a people so very widely dispersed as its inhabitants, many of them living in countries almost inaccessible.

The raising of flax, and spinning linen yarn, appear to be the most likely means of giving full employment to the great number of idle hands now in the country. This, if properly attended to, would prove a source of infinite wealth to this much neglected corner; and there is little doubt but the Board of Trustees for Manufactures at Edinburgh, and other public bodies, would interfere, and on proper application being made, would give every assistance to rescue so many thousands from a state of sloth and indolence, to that of useful industry, and thereby prevent such emigrations to America as have already taken place from this part of the Island.

The Highland parts of Perthshire, in point of soil and situation, are more barren, cold, and stormy, than any part of the county of Sutherland; yet by the industry of the people there, in raising flax and spinning yarn for sale, all the rents, as well as tradesmen's accounts due by the tenants, are paid from the produce of linen yarn, without depending on either corn or cattle for these purposes. This being the case there, and as linen yarn is an article for which there is always a great demand, and as it can easily be sent to market, where water-carriage offers at every quarter, why might not the county of Sutherland partake of the like advantages? There can be no doubt that the Board of Trustees for Manufactures, &c. in Scotland, would, when applied to, give every aid in their power, by furnishing flax-seed, and granting premiums here, as has been done formerly in most other counties. But still more would be wanted in Sutherland, where a total ignorance prevails, not only of the method

of

of preparing the ground for flax-seed, but of every operation necessary, from the sowing to the heckling and spinning. It is therefore thought absolutely necessary, in order to remove this ignorance, and to instruct the men as well as the women, in the different parts of the process falling to each sex, that a few hands, from the manufacturing counties, should be settled in each parish, in the manner afterwards to be taken notice of.

The factors, it may be proper to observe, ought to receive good linen yarn, in payment of rent, at the current price for the time being, and every tenant should be obliged to pay the whole, or a certain proportion of his rent, in that manner. Should such parts of the country as are adapted to the raising of flax, not produce a sufficient quantity to keep all the women spinning, there is another alternative, that is, importing Dutch flax. The manufacturers of Aberdeen, Dundee, &c. would gladly furnish what flax would be requisite in such an event; but then the difference of profit, in selling yarn from flax raised by the inhabitants, and that spun from imported flax, is as two and a half are to six. This difference would amount to a considerable sum, in the annual labour of some thousands of women.

It is not here necessary to descend to the minutiæ of the plan of management proper to be adopted, if the flax scheme, which is here proposed, be gone into. Such a plan may easily be formed, by collecting the skill and experience of other parts of Scotland. It may be sufficient to remark, that the advantage arising to a country, from having all the people in it usefully employed, is inconceivable. The counties of Angus and Perth are standing instances of this, and no place more so, than the Duke of Gordon's lordship of Huntly, which, though entirely an inland place, distant twenty or thirty miles

miles from water-carriage, yet from the exertions and example of an honest Irishman, who began the spinning and linen manufactures there, about forty or fifty years ago, with a capital only of 7*s.* 6*d.* and an old silver watch, he, in a short space of time, carried on so extensive a trade, and kindled such a spirit of industry, that that country is now become very wealthy, the rents well paid, and nearly doubled, and in some places tripled; and the honest Irishman himself, it is said, died lately, worth about 10,000*l.* after rearing a numerous family. Once industry is set afloat, cheapness of living and labour, with the additional convenience of water-carriage, may tend to attract manufactures and manufacturers. Were the inhabitants of Sutherland once become perfect and expert in spinning and raising flax, there is little doubt that weaving, bleaching, and perhaps printing, stocking-frames, and thread manufactures, may soon follow.

3. *Improvement of Waste Lands.*—Manufactures and fisheries are undoubtedly sources of much wealth, where they are properly established, and greatly tend to improve and enrich a country; yet experience has proved that they are in their nature but fleeting and uncertain benefits, which often take their departure from one country and fly to another. But improvements in agriculture, and the cultivation of waste grounds, are very different, being in their nature a lasting and permanent good. Nothing, therefore, ought to be more seriously attended to, than the improvement of waste lands, where there is a capability, and converting them to useful arable fields. This, it is believed, is only to be done to the greatest possible extent, and at least expense, by engaging every individual who holds a farm, to improve

less or more yearly, of such waste ground in the vicinity of his farm as may be fit for cultivation; and in order to encourage him thereto, he ought to have a reasonable allowance for his labour, as well as the whole profit arising from the improvement, at least for a given time. There is scarcely any farm in Sutherland that has not some ground adjacent to it fit for improvement: it is thought, therefore, that the proprietors should allow so much per acre for cultivating wastes, either by delving or trenching (for there are but few places where the plough could be successfully employed); the price of labour to be estimated, according to the difficulty attending it, when the work was completed. Some acres might cost 5*l.*, some 4*l.*, others 3*l.*, and even less, according as the ground was easy or difficult to work. This valuation to be paid to the tenant, as soon as the improved spot had been sufficiently dunged, and put under a crop of potatoes; flax to be the next crop, and after that barley and grass-seeds. The tenant, in return for the money thus given him, for effecting such improvement, to have five, six, or seven per cent. added to his yearly rent, as a compensation to the landlord for his advance of money. This would furnish useful labour to individuals now idle, and be equal to the buying of land at from fifteen to twenty years' purchase. It would, at the same time, produce an additional fund of subsistence for the inhabitants of the country; for, as the spinning of yarn is the entire province of the women, thus delving and trenching the ground, attending their little farms, sowing, pulling, and dressing the flax for the wheel, would furnish employment to the men, who at present, for a great part of the year, lounge away most of their time in idleness. And supposing that one man should thus prepare, in one year, but the fourth, or even

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the eighth or sixteenth part of an acre, the labour of several thousand men would, in a few years, make a very great addition to the arable land of the county. But the utmost attention would be necessary, to take care that the work was properly and thoroughly executed, and on ground which promised to turn out a profitable subject; and to prevent every imposition on this head, some very skilful person should view and line out the ground to be trenched or delved, before the work was begun, and examine it annually for three succeeding years. When leases are granted, a clause should be inserted, binding down each tenant to improve a certain extent of ground yearly, on the above plan, and making it a breach of lease if that were neglected. Such a coercive stipulation, joined to such liberal and advantageous terms, could not be deemed either unreasonable or oppressive.

4. *Establishing regular Markets.*—The laying down some proper regulations in the county, for the sale of black cattle, is a measure greatly wanted, and in which every Proprietor in it is deeply interested. No cattle should be sold, but to those who either paid ready money, or who lodged undoubted letters of credit for paying, at a fixed time, the prices of the cattle he bought on credit, and that without any claim for deduction, or what they call discount, from the prices agreed on. Attending to the above precautions, would prevent such heavy losses as the poor people have sustained for some years past.

5. *Destruction of Vermin.*—Much advantage would accrue to the people of Sutherland, were the foxes and eagles destroyed. Vermin have been driven from other countries, and the inhabitants feel the happy effects of their

extirpation. Why not extirpate them here also? A great part of the county of Sutherland is well calculated for feeding moderate flocks of sheep; and could the owners, with safety from foxes and eagles, drive them to the mountains, and allow them to remain there all summer and autumn, their breed of sheep, and quality of wool, might be greatly improved, and the number much increased. At present, in order to preserve the few they have, they are under the necessity of housing them every night, and of course keeping them through the day on poor starved pasture, in the vicinity of their houses, the grass of which pasture ought to be reserved untouched, till the winter and spring, when it would be necessary for them to have their sheep nearer home. Introducing likewise a breed of the fine soft-woolled sheep, at least a number of good rams, of a superior kind to that now reared in Sutherland, would surely be a means of improving the carcass of the sheep, as well as the quality of the wool.

6. *Woods.*—With respect to woods and plantations, the natural birch woods in the county are much on the decline, and from the present state of them, there is great reason to fear, that in a generation or two hence they will be mostly all run out. This would be a melancholy situation for the inhabitants, as the great distance many of them are from the sea-side, joined to the badness of the roads, would render it scarcely possible for them, did they get wood gratis, to carry it to their different places of abode, for keeping up their houses, and other purposes. There are two plantations on the east coast of Sutherland, besides those of Skibo; one at Cyder-hall, and the other at Balblair, near Dunrobin, which, with the new plantations there, may supply that district sufficiently

ciently in wood for one or two generations. But it is a measure which ought to be followed all over the county, to cause a certain tract of muir in each parish, to be enclosed and planted with larch, or Scotch fir, so as to provide a fund for posterity. This measure would be attended with no great expense, and would in time turn out to be of real and solid advantage.

7. *The Fisheries.*—With respect to the fisheries, it is unnecessary to take any particular notice of them in this place, not being immediately connected with the subject in hand; and it is to be hoped, that the patriotic Society for improving the Fisheries in the Islands and Highlands of Scotland, will carry on their laudable views, so as to bring them to very considerable perfection. The fisheries at sea, are undoubtedly capable of great improvement. As to those of salmon in the different rivers of the county, it is thought they may be greatly improved, by taking proper care of the salmon that go up the rivers in the spawning season; preventing their being destroyed by the country people, and limiting those to whom these fishings are let, not to fish beyond the legal period fixed by the Scotch Act of Parliament, namely, the 26th of August; observing also what is called the Saturday slap.

8. *Premiums.*—It is believed, that granting certain premiums, such as a gown or cloak, to the woman who delivered the greatest quantity of the best spun yarn in each parish; that of a coat of a particular colour, and a hat or bonnet adorned with ribbons, to the man who raised the greatest quantity of flax; the same, of another colour, with a hat or bonnet differently adorned, to the man who improved the greatest extent of waste ground, with several other premiums needless to men-

tion at present, might, when those who gained such premiums, appeared thus distinguished at church, or market, be the means of creating great emulation, and of producing powerful exertions in these different branches of industry.

9. *Sheep Farms.*—It is well known, that in many parts of the Highlands, sheep, instead of cattle, have lately been introduced, the policy and advantages of which alteration have been the subject of much discussion. It is certain, that the change of stock, above alluded to, has been attended with much mischief, from the manner in which it has been conducted; and the late Mr. Rose drew up a very strong representation upon that subject, which it may be right to state in his own words, as it relates to a subject of the utmost importance to a large body of valuable subjects.

" A kind of rage for sheep-farming, having of late years prevailed in many parts of the Highlands of Scotland, it may, perhaps, be expected, that some notice should be taken of that mode of improvement, or, more properly speaking, that mode of stretching and increasing rents, (for the depopulation of a country, can, with no degree of propriety, be termed the improvement of it) more especially since that plan, as conducted at present, has for its basis the immediate depopulation of a country, and the extirpation and dispersion of its inhabitants. It is hardly necessary to observe, that before such a scheme is gone into, it ought to be very maturely considered, as well as the consequences that may in time result from its being too hastily adopted. But were this mode of farming less chargeable with the want of philanthropy and state policy, than it really is, it is thought to be a very hazardous experiment; more especially when attempted

attempted in a country remote from markets, and frequently liable to the greatest severity and inclemency of the seasons. No mode of farming requires a greater capital to set it properly a-going. Of course, were it to be adopted in Sutherland, it would be requisite to provide sheep-farmers from other countries to carry it on, and entire tracts of country must forthwith be depopulated, to make room for one of those great sheep-farmers and his flock. Were it thus so far established, did there come on a season or two such as 1782, it would then probably be all over with sheep, and an end would be put to that inhuman speculation. The next consequence that would probably follow, is, that the sheep-farmer, being a stranger, would return whence he came. His bad success would intimidate others from following his example, and the depopulated country would lie waste and unoccupied, for want of inhabitants. For, let once the natives of these countries be extirpated or dispersed, it is believed that no set of people, whatsoever, from any other quarter of the globe, would be got to inhabit them. Now, laying aside entirely that remorse of conscience, naturally impressed on the mind of man, on the commission of any cruelty, or act of inhumanity towards his fellow creatures, as a principle that seldom, if ever, finds room in the covetous, avaricious soul, and supposing the heart to have become quite callous to every generous humane feeling, yet it is thought a consideration of the consequences already mentioned, (consequences to be expected and looked for) ought at least to deter every prudent and considerate man, from hazarding or sacrificing a certain permanent benefit, and in its room substituting an uncertain and barbarous speculation. The preservation of the state at large, is surely so much involved in the mischiefs that may accrue from this kind of specu-

lation, that it is surprising the public do not take the alarm, so as to restrain, or put a stop, to private interest or avarice, when making such wide strides towards extirpating the human race from these bleak dreary mountains, from whence, in times of national danger, armies were speedily called forth, and legions rapidly completed."

10. *Public Encouragements.*—The assistance of the public, in carrying on the improvement of these remote districts, may be certainly expected, whenever the circumstances of the case are properly represented to Government. A few things shall be mentioned, the granting of which would be but a mere mite to the public, but might at the same time be the means of relieving many thousands, and rendering them happy in their private capacity, and useful to the state; preventing, at the same time, any thoughts of flying to America, where the inhabitants of this country have a great number of their friends already settled, in consequence of former emigrations.

The introduction of manufactures, the raising and spinning of flax, might, it is thought, answer in a great measure the ends here proposed, joined to that of giving proper encouragement to the fisheries. But as the latter is under the management of the patriotic Society for Improving Fisheries, &c. nothing shall be said on that subject. As to the former, giving flax-seed to the inhabitants gratis; granting an allowance, for a time certain to some skilful hands, men, as well as women, to be brought from the manufacturing counties, to instruct the people of Sutherland in the process of flax-dressing and spinning; wheels and reels also, with an annual allowance to two or three wheel-wrights, as an encouragement

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to settle in different parts of the county, to keep them in repair, might tend to establish industry and manufactures in a wide and extended territory, where they are at present unknown. Likewise something by way of bounty, on each yard of cloth, or spindle of yarn, to make up for the disadvantages under which the manufactures must always be carried on, in consequence of the difficult and dangerous navigation, both of the Dornoch Frith and the North Sea. The risque and disadvantage attending this navigation, will not only occasion high freightage, but constant insurance, on the seed or flax imported, as well as yarn and cloth exported; and frequent demurrage must be incurred, when vessels cannot look in with safety to any of the Sutherland harbours, *i. e.* when the winds set in east, or at north, or south-east; for though water-carriage may be had at all quarters, as already mentioned, yet the navigation is dangerous, and subject to the disadvantages above described: and without some such aid from Government, the inhabitants or manufacturers, in that country, cannot carry on the linen or flax trade on equal terms with those in the more southern and more accessible countries. An aid, also, towards getting bridges built, and roads made, to render the country more open than it is at present, as well as the post-office, to afford a regular communication between the Dornoch Frith and the north coast. Unless these last mentioned advantages are speedily introduced, every other attempt towards improvement must prove fruitless and abortive.

11. *On the Management of Highland Property.*—Where a Highland estate is populous and extensive, it ought never to be put under the management of only one factor, or land steward. One at least ought to be established in each

each district. Each of these factors to have a good farm, at the present rent, in a central part of the district, with an allowance of five per cent. for what rent he receives, and for what may pass through his hands for spinning. These factors to be at the same time restrained from exacting services, accepting presents, or dealing as drovers in the purchase of black cattle, under any pretence whatever. Whether these factors should be singled out from among the gentlemen of the county, or strangers from some of the industrious counties, is a matter to be duly considered. Were nothing else to be attended to, than collecting and remitting rents, the former would answer perfectly well. But unless where natives can be found, acquainted with the improvements above recommended, it is thought that employing strangers would be a much more eligible measure. As improvements in Agriculture, flax raising, and the spinning business, can never be properly introduced, or effectually carried on, without first introducing strangers from some one or other of the industrious counties, to teach and instruct the people of Sutherland, it is therefore thought, that the factors to be employed ought to be intelligent young men, well recommended, with a competent share of education, the sons of opulent farmers in one or other of these counties, each of whom should bring with him a few married men, of the labouring class of people; the men to be conversant with the flax raising business, and the women in spinning. These to be chiefly employed in the instruction of the inhabitants; at the same time that they might act as wood-keepers, bailiffs, or park-keepers, and do at least as much in that way, as is done at present by those who officiate in these capacities. As the Highlands of Perthshire are pretty similar, in point of climate, to that of Sutherland, and the language of the people the same, it is thought that factors and labouring

bouring people from that quarter might answer better than from any other.

Collecting, and remitting rents once a year, is the smallest part of a factor's duty. This can be done very well by any honest person, who, in a moderate degree, understands the ordinary and common routine of accounts. Much more, however, is included in that duty, viz. a constant and general attention to every thing in which the interest of the proprietor, of the people, or of the estate is concerned; and, also, an intimate knowledge of, and acquaintance with, all the tenants on the estate, their respective circumstances and characters, so as to be able to distinguish the industrious from the indolent, and the honest man from the worthless. But to attain this general knowledge, where there are from 1000 to 1500 tenants, the greater part of them residing in remote countries, distant, perhaps, forty, fifty, sixty, nay seventy miles from the factor, is scarcely to be attained in a lifetime by one man; but if a factor resided in each district, each would soon become sufficiently acquainted with all the tenants under his charge, and would, from a knowledge of their circumstances, prevent their running in arrear beyond what they could pay: could likewise, with ease, in his own district, take care that public edifices, such as churches, manses, &c. do not become ruinous for want of timely repair: could protect woods from depredations, and the salmon in the rivers from being destroyed by the country people, in the forbidden or spawning seasons: could settle and adjust any disputes or difference that might arise among the tenants, superintend the progress they made in cultivating the waste grounds, the method they used in raising and working up their flax, and receive their yarn, from time to time, as it became ready: and lastly, could protect the

the people from many impositions, now complained of in some of the remote districts, namely, that of having their cattle taken from them, at an undervalue, by persons affecting a superiority over them; and at other times, by little extorting money-holders and engrossers, who, for affording a little supply of money, when any distress occurs, take their cattle at their own price.

Having said so much, as to the advantages that would arise from having different factors in different districts, on a large estate, it is surely unnecessary to state the disadvantages which must necessarily arise from having only one, more especially if the property is particularly extensive.

Conclusion.—On the whole, as this country, though thinly peopled for its vast extent, has in it a number of unemployed inhabitants; as they are supplied, at little or no expense, with several of the principal necessaries of life, such as fuel, candles, &c.; as they have some corn to feed themselves, and a good deal of grass to maintain their cattle, it is thought that with such advantages, if agriculture and manufactures were carried on with spirit, these people, now struggling with poverty and distress, might, in the course of a very few years, not only pay the rents to which they are now subject, without difficulty, but also, in process of time, might be able to bear a considerable advance without oppression, living, at the same time, much more comfortably and happily than ever.

No. VII.

No. VII.

Plan for the Improvement of the Estates of Skibo and Pulrossie.—Drawn up by George Dempster, Esq.

The estates of Skibo and Pulrossie contain about 18,000 acres of land, extending from the Point of Ardnacalk, on the north bank of the Frith of Dornoch, westward to Port-Leak, being an extent of twelve or fourteen miles. The bulk of the estate is hilly; but the hills are of no great height, seeming generally to rise about from 500 to 700 feet above the level of the Frith. There may be about 200 families living on these estates, with the exception of the *mains*, or house-farms, of each place. The farms are of small extent in arable ground, which produce some corn, and potatoes, hardly sufficient to maintain the families of the tenants, who pay their rents by the sale of cattle, which are fed in their houses, on straw, through the winter, and pick up a miserable subsistence on the waste and common ground of the estate, during the summer. The whole of the present rent is from 700*l.* to 800*l.* a year, of which more than a fourth part is paid by the two large farms belonging to the mains, or mansion-house. The estates furnish some wood, with which, and the swarded surface of the ground, cut into the form of large bricks, they make houses and offices for themselves, covering them with the same swarded turf, cut thinner, and resembling slates in their form. Once in three years, all the earthy part of these houses are thrown on the dunghill, and new houses built again of the same materials. The cattle commonly occupy one end of the house, during the winter season. Some holes in the walls and roofs serve for windows and chimneys.

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An iron pot, for boiling their food, constitutes their principal furniture. Nothing can exceed the wretched appearance of these habitations. As to the occupation of the people, the women begin to earn a little money by spinning. The young men go early in the spring to the South Country, and hire themselves for all kinds of country labour; towards harvest, many of the women also go the same way, to assist in cutting down and getting in the crop. They all return before winter, and are said to pass their time round good fires of peat, which the country every where furnishes, and to do very little work. In the South Country, however, to which they go, they are remarked for their assiduity, and are said to be indefatigable in executing all manner of task-work. Those who remain at home, attend to the concerns of their corn, potatoes, and cattle, and to the providing of their fuel from the neighbouring peat-mosses. The climate, near the banks of the Kyle, or Frith of Dornoch, ripens wheat, barley, oats, and pease; becoming gradually colder, as you recede therefrom, and ascend the hills, which are covered with heather, interspersed with coarse grass. The valleys among the hills, and the ground on the sides of the hills, appear to be capable of being cultivated: and there are many little rising grounds, some flat moors, and the face of some of the hills so bare and stony, as to be fit for plantations only. I need not premise, that the inhabitants are in general poor; that is, possess little money or goods, except a stock of very indifferent cattle.

Plan for their Improvement.—It is not the intention, therefore, of the Proprietors, to exact for some time any increase of rents from these people; but, on the contrary, to encourage them, by every possible means, to improve their little spots of land, and to construct for themselves more

more comfortable houses, and to build them of more durable materials. On these estates, there are some stations remarkably well adapted for villages. They lie on the banks of the Kyle, which is a frith or arm of the sea, navigable for seven miles by vessels of considerable burthen, and for small craft about fifteen miles more. In all, this frith is navigable for twenty-four miles. To give a beginning to these villages, a company is formed, consisting chiefly of Glasgow gentlemen, who have subscribed a capital of 3000*l.* and made some progress in erecting a manufacture of spinning cotton by jennies, and of weaving their yarn. Instructed persons are sent from Glasgow to conduct the work, and to teach the natives of the county the arts of spinning and weaving. The town is lotted out, and some houses for weaving in forwardness. Vessels of fifty tons burthen can land their cargoes at this place.

A second village, two miles lower down the Kyle, is also lotted out, and a large warehouse already built. Here the water is deep enough to receive any vessel which can enter the Kyle, and come over the bar at its mouth, known by the name of the *Gizzing Briggs*, on which there is four fathom water at spring tides, and six or seven feet less at neap tides. Here, also, a gentleman has undertaken to establish the weaving of linen, and to encourage the extension of the spinning of yarn all around the country. At both manufactories, apprentices will be instructed in weaving, in order to introduce that art into the houses of the small tenants, as it is found already to be in the shires of Renfrew, Perth, Angus, and Aberdeen. By these means, constant employment will be found for people of all ages and sexes, and a considerable market opened for the productions of the county.

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That the people may have nothing to divert their attention from their own business, all the services performed by them and their cattle, to their superiors, are commuted into money, and thirlage to the mills of the baronies is also abolished. Measures are taking to give the people secure possession (for their own lives at least) of their houses, gardens, and arable lands, with full liberty to cultivate as much of the waste land as they please. Their cattle are suffered to pasture on the waste lands, as long as they shall remain in a waste condition; but the Proprietors reserve to themselves the power of enclosing, and planting, all such parts of the waste lands as are fit for no other purpose. Some plantations of this kind have been already made, and the trees seem to thrive very well on the lightest soils. The trees are principally the larch, the Scotch fir, and the birch intermixed with beech and mountain ash. The rest of the waste lands are open to every new settler who shall incline to cultivate them. Twenty or thirty new settlers have already exhibited strong proofs of what Highlanders can do in the improvement of their own country, when secured in the enjoyment of the fruits of their labour: it may be worth while to mention the nature of this security. The first settlers may improve as much land as they find waste around them, for which they pay only one shilling a year, during their lives; when they die, their heirs have the refusal of their fathers possessions, at an appraised value to be fixed by arbitrators mutually chosen. This rent invariable till the next generation, when the valuation is to be repeated, and so on every generation. A little iron for tools, wood for their houses, and seed potatoes, and corn, are furnished to them for the first two years. They are exempted from every species of personal service. Those who have visited the

the mountainous countries of Switzerland, Wales, and Norway, have seen what liberty and security can do towards rendering them fertile. In addition to the general freedom, which the inhabitants of this happy island enjoy under our mild and durable constitution, the inhabitants of these estates will enjoy perfect security as occupiers of land. That these advantages will lead them gradually to better their houses, to improve their lands, and to alter their own condition in every respect, for the better, is beyond doubt.

To calculate the advantages which will in time accrue, from this system, to the owners of 18,000 acres of land on which it is introduced, would be no easy matter; but the following observations will lead, perhaps, to the forming some idea of them.

Land lets for potatoe grounds and other purposes, round many towns in Scotland, at various rents, from 1*l.* to 10*l.* Manufacturers in Lancashire, and in some of the counties of Scotland, pay for the little spots they occupy, in the country round their own houses, from 1*l.* to 4*l.* sterling per acre. The cotton manufacture is said to have doubled the rents of Lancashire, within these last 20 years. The demand for wood is very great; and as all the wood on this estate will be near a navigable frith, the wood will fetch the current price, and be liable to little deduction, from the facility of carrying it to market; while the facility of being supplied with that article from the Baltic is said to lessen yearly. The probable future value of these estates cannot be easily ascertained; but, we know, that wherever industry has extended itself in Scotland, the rents of land have risen at least threefold, and much more in the neighbourhood of towns. It is to be observed, that this system is attended with no expense whatsoever to the Proprietors, except

that part of it, which consists in planting the useless land; and which, as it is considerable (perhaps not less than 3*l.* per acre), may either be omitted, or done on a smaller scale, and by slow degrees, according to the faculty and inclination of the Proprietor.

Shall we state none of the advantages but those of a *pecuniary* nature? Is nothing to be set down for the pleasure of beholding the progress of the prosperity of a country? Is the joy of seeing houses and towns rising around you, of no value? Nor the ultimate benefit derived to your country, by adding to it industrious inhabitants and cultivated land; thriving towns and flourishing manufactures? Is there no pleasure in beholding the growth of woods of one's own planting? Nor the success of a system so intimately connected with the happiness of people placed by Providence under our care? Some have thought, that it would be a fitter use for the Highlands to convert them into sheep-walks. That it might be better for the people to cultivate sheep, instead of black cattle, is probably true. That the sheep is a hardier and a more useful animal than the ox, may be true also. That the increase of rents, by converting cattle-breeding farms into sheep-walks, would be more sudden, than by the system here suggested, is not to be disputed. But that the estates would ultimately become more valuable, is by no means so clear a proposition. Tracks of land which have been converted into sheep-farms, yield little more, at an average, than 1*l.* sterling per one hundred acres. This is indeed a better rent than before. But how contemptible must this rent appear, when compared with an estate occupied by industrious manufacturers, and abounding in large woods of the finest fir, larch, and other trees? It is to be observed too, that there is a certain incompatibility between sheep, and inhabitants

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and trees. No care can protect new plantations from the depredations of sheep; the common breed overleap every fence, and elude the utmost vigilance of the shepherd. The leaves of trees are their favourite food in summer; and the bark is their medicine, as well as food, in winter. The lower grounds, now occupied by people, must be reserved for the food and shelter of the flock in winter; and this circumstance seems to form the chief incompatibility between sheep and people. This argument will have the greatest weight with those, whose observation or inquiries may have led them to compare the mountainous parts of Spain, appropriated to sheep-walks, with the mountains of Switzerland and Wales, occupied by free and industrious inhabitants. The comparison is not to be made by units or decimals; for the advantages of men instead of sheep, are as thousands to one. As the understanding, industry, and ingenuity of man, in a state of freedom, are superior to those of the brute creation, so is the value of an estate inhabited by mankind to one occupied by sheep.

It is true, the people need not be driven out of the country, because sheep are introduced into it. Villages may be built for them, where they might be employed in manufactures. Let me ask, has that been the case? And let me doubt a little of the success of villages by compulsion. It is one thing to build a village, to which people may resort if they choose it, and another to drive them from the country into villages, where they must starve, unless they change at once their manners, their habits, and their occupations. How much better would it be, gradually to introduce spinning-wheels and looms into their houses, than to drive them from their houses, their gardens, and their little fields? Besides, are men as advantageously placed in villages, for cultivating the soil,

as when dispersed over every corner of the estate? Towns are said to thrive in proportion to the populousness of the country around them. It is by a mutual exchange so commodities, that both towns, and the country around, mutually support one another. To conclude, it is neither by feeding black cattle nor sheep, in the Highlands, that that country can be improved, but by the introduction of arts and agriculture. The first will increase the number and wealth of the people; the latter will augment the quantity of the productions of the soil, both for the maintenance of people and cattle. But neither arts nor agriculture can prosper, unless the inhabitants are secure in the tenure by which they occupy the spots on which they live. Good laws, a vigorous execution of them, feus, and long leases, are the great sources of the prosperity of every country, and of Highland, as well a of more fertile and champaign countries. Try the question by this test: Let us ask ourselves, if the Highlands of Scotland possess at present those sources of improvement and wealth? To these indeed must be superadded, on the part of Government, good roads, made at the public expense; for no mountainous country can be completely improved, till it be made accessible by good roads, the expense of which its inhabitants are unable to defray.

To conclude, Sutherland, of all the counties north from Inverness, the eastern half of Caithness, and of Ross-shire, excepted, appears to me the most capable of improvement. The summits of its hills may be improved by being planted with larches; its valleys by the plough. There is an immense tract of land bounded by Lochshin on the west, and extending to the eastern extremities of the county, of great breadth, and almost flat, capable, in my opinion, of carrying barley, turnip, potatoes, and sown grasses, but now covered with heath,

and

and devoted to summer coarse pasture of a few miserable cattle. A lime, or rather marble quarry on the same side of Loch-shin, joined to decomposed moss and turf, offer endless means of improving this tract. All the other valleys in this county may be improved a great way up the sides of the hills, by which they are formed. The natural genius of the inhabitants of the county disposes them to delight in its cultivation. But leases must be granted them, of no short duration; they must be freed from every feudal servitude; they must have the absolute disposal of their time, and their labour; and, for a generation or two, their rents must be small and fixed, and paid solely in cash. Premiums might be annually distributed among those who had cultivated their possessions to the best purpose; who had built the best houses; and bred the best horses, cattle, and sheep. Their frugal habits enable them to live, from the starting almost, on the scanty produce of their little spots; and, in time, to cultivate them more extensively. The industry of their women by spinning yarn for our manufacturers, would, and does now, help them to subsist. Schools should be multiplied, so as to be within the reach of their children. Want of schools is one of the greatest disadvantages under which those Highland districts labour. The law allows and provides for a school in every parish; but a Highland parish is almost as extensive as a Lowland county. The parish of Criech, in this county, is of 26 miles extent, and the parish-school can be attended but by a small part of the children. Those who have visited Switzerland and Wales, will easily give credit to the soundness of these ideas, for rendering a Highland district fertile and populous.

It is not much more than a century since the interior and higher parts of the county of Forfar, were nearly in

the same condition with the interior of Sutherland. The tenants of its warmer and more kindly coast situation, occupied farms in the upper districts, to which they sent their horses and cattle to graze, during the summer months, while their own farms below were applied to the producing of corn, on the *in-field* and *out-field* system. Many of those interior farms are now enclosed, improved, adorned with hedges, and hedge-row trees, and producing rich crops of wheat, turnips, oats, barley, and potatoes, almost to the summits of its two ranges of mountains, known by the names of the Sidlaw and Grampian Hills: while their summits have been planted with thriving woods of larches and Scotch firs, giving to the whole county of Forfar, a richly cultivated appearance. Such does Sutherland present itself to my sanguine imagination. But ideas precede realities. Fifty years ago, what were the canals, the agriculture, the illumination of our coasts, the roads, the bridges, the villages, and plantations of the Highlands of Scotland, but ideas?

——— *volvenda dies en attulit ultro.*

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—— White boiling,
—— Pearl.
—— Blue Prussian.
—— Maple.
Potatoes. Ox-noble.
——— Late champion.
——— Large red.
——— Nicholson seedling.
——— Bomb-shell.

Rib-grass. Lambs-tongue, or
——— Upright plantain.
Rape, or coleseed.
Rye.

Sainfoin.
Saridella.

Tares. Spring.
—— Winter.
—— White.
—— Perennial.
Trefoil. Birdsfoot.
——— Common, various sorts.
Turnip. Early stone.
——— White Norfolk.
——— Norfolk bell.
——— Stubble.
——— Green top.

Turnip. Red-top.
——— Large yellow.
——— Globe.
——— White tankard.
——— Green ditto.
——— Red-top ditto.
——— Large Dutch.
——— True yellow Swedish, or ruta baga.
——— White Swedish.

Vetch. Kidney.
—— Chickling.
—— Pale-flowered.
—— Everlasting.
—— Great wood.
—— Six-flowered.
—— Tufted.
—— Bush.
—— Hoary.
—— Sainfoin.
—— Red-flowered.
—— Biennial.
—— Bastard.
—— Broad-podded.
—— Rough.
—— Single-flowered.
—— Narbonne.
—— Flat-podded.
—— Hairy ditto.
—— Narrow-leaved.
—— Streaked.
—— White-flowered.
—— White-seeded.
—— Horse-shoe.
—— Milk
—— Liquorice.

Weld.
Wheat. Red Lammas.
——— Common white.
——— White hedge.
——— White Siberian.
——— Egyptian.
——— Sicilian.
——— Round African.
——— Zealand.
——— Cape.
——— Dantzick.
Woad.
Yarrow.

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